

SEQUENCE LISTING

<110> Lotze, Michael T
Tahara, Hideaki

<120> Methods And Reagents For Inducing Immunity

<130> UPT-004

<150> 60/418,865

<151> 2002-10-15

<160> 87

<170> PatentIn version 3.1

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Ser Gln Val Lys Thr Phe Phe Gln Thr Lys Asp Gln Leu Asp Asn Ile
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Leu Leu Thr Asp Ser Leu Met Gln Asp Phe Lys Gly Tyr Leu Gly Cys
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Gln Ala Leu Ser Glu Met Ile Gln Phe Tyr Leu Val Glu Val Met Pro
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Gln Ala Glu Lys His Gly Pro Glu Ile Lys Glu His Leu Asn Ser Leu
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Gly Glu Lys Leu Lys Thr Leu Arg Met Arg Leu Arg Arg Cys His Arg
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Arg His Pro Ile His Ile Lys Asp Gly Asp Trp Asn Glu Phe Arg Arg
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Glu Ile Ile Lys Thr Leu Asn Ser Leu Thr Glu Gln Lys Thr Leu Cys
 35 40 45

Thr Glu Leu Thr Val Thr Asp Ile Phe Ala Ala Ser Lys Asn Thr Thr
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Glu Lys Glu Thr Phe Cys Arg Ala Ala Thr Val Leu Arg Gln Phe Tyr
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Ser His His Glu Lys Asp Thr Arg Cys Leu Gly Ala Thr Ala Gln Gln
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Phe His Arg His Lys Gln Leu Ile Arg Phe Leu Lys Arg Leu Asp Arg
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Asn Leu Trp Gly Leu Ala Gly Leu Asn Ser Cys Pro Val Lys Glu Ala
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Ile Leu Leu Asn Cys Thr Gly Gln Val Lys Gly Arg Lys Pro Ala Ala
115 120 125

Leu Gly Glu Ala Gln Pro Thr Lys Ser Leu Glu Glu Asn Lys Ser Leu
130 135 140

Lys Glu Gln Lys Lys Leu Asn Asp Leu Cys Phe Leu Lys Arg Leu Leu
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Gly Cys Phe Leu Gly Tyr Leu Gly Cys Gln Ala Leu Ser Glu Met Ile
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Gln Phe Gln Leu Glu Glu Val Met Pro Gln Ala Glu Asn Gln Asn Pro
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Glu Ala Leu Asn His Val Asn Ser Leu Gly Glu Ala Leu Leu Gln Leu
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Arg Leu Arg Leu Arg Arg Cys His Arg Phe Leu Pro Cys Glu Asn Leu
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Ser Leu Ala Val Glu Gln Ile Leu Asp Ala Phe Asp Lys Leu Gln Glu
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Ile Arg Gly Gln Ile Leu Ser Lys Leu Arg Leu Ala Ser Pro Pro Ser
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Gln Gly Glu Val Pro Pro Gly Pro Leu Pro Glu Ala Val Leu Ala Leu
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Tyr Asn Ser Thr Arg Asp Arg Val Ala Gly Glu Ser Ala Glu Pro Glu
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Pro Glu Pro Glu Ala Asp Tyr Tyr Ala Lys Glu Val Thr Arg Val Leu
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<210> 13
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 ggtactagtt cagacacttt ggaagtttgt gttctgtttg ttaaaactgg catctgacac 1620
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 35 40 45

Lys Leu Thr Ser Pro Pro Glu Asp Tyr Pro Glu Pro Glu Glu Val Pro
 50 55 60

Pro Glu Val Ile Ser Ile Tyr Asn Ser Thr Arg Asp Leu Leu Gln Glu
 65 70 75 80

Lys Ala Ser Arg Arg Ala Ala Ala Cys Glu Arg Glu Arg Ser Asp Glu
 85 90 95

Glu Tyr Tyr Ala Lys Glu Val Tyr Lys Ile Asp Met Pro Pro Phe Phe
 100 105 110

Pro Ser Glu Asn Ala Ile Pro Pro Thr Phe Tyr Arg Pro Tyr Phe Arg
 115 120 125

Ile Val Arg Phe Asp Val Ser Ala Met Glu Lys Asn Ala Ser Asn Leu
 130 135 140

Val Lys Ala Glu Phe Arg Val Phe Arg Leu Gln Asn Pro Lys Ala Arg
 145 150 155 160

Val Pro Glu Gln Arg Ile Glu Leu Tyr Gln Ile Leu Lys Ser Lys Asp
 165 170 175

Leu Thr Ser Pro Thr Gln Arg Tyr Ile Asp Ser Lys Val Val Lys Thr
 180 185 190

Arg Ala Glu Gly Glu Trp Leu Ser Phe Asp Val Thr Asp Ala Val His
 195 200 205

Glu Trp Leu His His Lys Asp Arg Asn Leu Gly Phe Lys Ile Ser Leu
 210 215 220

His Cys Pro Cys Cys Thr Phe Val Pro Ser Asn Asn Tyr Ile Ile Pro
 225 230 235 240

Asn Lys Ser Glu Glu Leu Glu Ala Arg Phe Ala Gly Ile Asp Gly Thr
 245 250 255

Ser Thr Tyr Thr Ser Gly Asp Gln Lys Thr Ile Lys Ser Thr Arg Lys
 260 265 270

Lys Asn Ser Gly Lys Thr Pro His Leu Leu Leu Met Leu Leu Pro Ser
 275 280 285

Tyr Arg Leu Glu Ser Gln Gln Thr Asn Arg Arg Lys Lys Arg Ala Leu
 290 295 300

Asp Ala Ala Tyr Cys Phe Arg Asn Val Gln Asp Asn Cys Cys Leu Arg
 305 310 315 320

Pro Leu Tyr Ile Asp Phe Lys Arg Asp Leu Gly Trp Lys Trp Ile His
 325 330 335

Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala Cys Pro Tyr
 340 345 350

Leu Trp Ser Ser Asp Thr Gln His Ser Arg Val Leu Ser Leu Tyr Asn
 355 360 365

Thr Ile Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Ser Gln Asp
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 cttctgcacg tctgctgggg tctcttcctc tccaggcctt gccgtcccc tggcctctct 240
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 Met Lys Met His Leu Gln Arg Ala Leu Val Val Leu
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 gcc ctg ctg aac ttt gcc acg gtc agc ctc tct ctg tcc act tgc acc 337
 Ala Leu Leu Asn Phe Ala Thr Val Ser Leu Ser Leu Ser Thr Cys Thr
 15 20 25
 acc ttg gac ttc ggc cac atc aag aag aag agg gtg gaa gcc att agg 385
 Thr Leu Asp Phe Gly His Ile Lys Lys Lys Arg Val Glu Ala Ile Arg
 30 35 40
 gga cag atc ttg agc aag ctc agg ctc acc agc ccc cct gag cca acg 433
 Gly Gln Ile Leu Ser Lys Leu Arg Leu Thr Ser Pro Pro Glu Pro Thr
 45 50 55 60
 gtg atg acc cac gtc ccc tat cag gtc ctg gcc ctt tac aac agc acc 481
 Val Met Thr His Val Pro Tyr Gln Val Leu Ala Leu Tyr Asn Ser Thr
 65 70 75
 cgg gag ctg ctg gag gag atg cat ggg gag agg gag gaa ggc tgc acc 529
 Arg Glu Leu Leu Glu Glu Met His Gly Glu Arg Glu Glu Gly Cys Thr
 80 85 90
 cag gaa aac acc gag tcg gaa tac tat gcc aaa gaa atc cat aaa ttc 577
 Gln Glu Asn Thr Glu Ser Glu Tyr Tyr Ala Lys Glu Ile His Lys Phe
 95 100 105
 gac atg atc cag ggg ctg gcg gag cac aac gaa ctg gct gtc tgc cct 625
 Asp Met Ile Gln Gly Leu Ala Glu His Asn Glu Leu Ala Val Cys Pro

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aaa aat aga acc aac cta ttc cga gca gaa ttc cgg gtc ttg cgg gtg Lys Asn Arg Thr Asn Leu Phe Arg Ala Glu Phe Arg Val Leu Arg Val 145 150 155			721
ccc aac ccc agc tct aag cgg aat gag cag agg atc gag ctc ttc cag Pro Asn Pro Ser Ser Lys Arg Asn Glu Gln Arg Ile Glu Leu Phe Gln 160 165 170			769
atc ctt cgg cca gat gag cac att gcc aaa cag cgc tat atc ggt ggc Ile Leu Arg Pro Asp Glu His Ile Ala Lys Gln Arg Tyr Ile Gly Gly 175 180 185			817
aag aat ctg ccc aca cgg ggc act gcc gag tgg ctg tcc ttt gat gtc Lys Asn Leu Pro Thr Arg Gly Thr Ala Glu Trp Leu Ser Phe Asp Val 190 195 200			865
act gac act gtg cgt gag tgg ctg ttg aga aga gag tcc aac tta ggt Thr Asp Thr Val Arg Glu Trp Leu Leu Arg Arg Glu Ser Asn Leu Gly 205 210 215 220			913
cta gaa atc agc att cac tgt cca tgt cac acc ttt cag ccc aat gga Leu Glu Ile Ser Ile His Cys Pro Cys His Thr Phe Gln Pro Asn Gly 225 230 235			961
gat atc ctg gaa aac att cac gag gtg atg gaa atc aaa ttc aaa ggc Asp Ile Leu Glu Asn Ile His Glu Val Met Glu Ile Lys Phe Lys Gly 240 245 250			1009
gtg gac aat gag gat gac cat ggc cgt gga gat ctg ggg cgc ctc aag Val Asp Asn Glu Asp Asp His Gly Arg Gly Asp Leu Gly Arg Leu Lys 255 260 265			1057
aag cag aag gat cac cac aac cct cat cta atc ctc atg atg att ccc Lys Gln Lys Asp His His Asn Pro His Leu Ile Leu Met Met Ile Pro 270 275 280			1105
cca cac cgg ctc gac aac ccg ggc cag ggg ggt cag agg aag aag cgg Pro His Arg Leu Asp Asn Pro Gly Gln Gly Gly Gln Arg Lys Lys Arg 285 290 295 300			1153
gct ttg gac acc aat tac tgc ttc cgc aac ttg gag gag aac tgc tgt Ala Leu Asp Thr Asn Tyr Cys Phe Arg Asn Leu Glu Glu Asn Cys Cys 305 310 315			1201
gtg cgc ccc ctc tac att gac ttc cga cag gat ctg ggc tgg aag tgg Val Arg Pro Leu Tyr Ile Asp Phe Arg Gln Asp Leu Gly Trp Lys Trp 320 325 330			1249
gtc cat gaa cct aag ggc tac tat gcc aac ttc tgc tca ggc cct tgc Val His Glu Pro Lys Gly Tyr Tyr Ala Asn Phe Cys Ser Gly Pro Cys 335 340 345			1297
cca tac ctc cgc agt gca gac aca acc cac agc acg gtg ctg gga ctg Pro Tyr Leu Arg Ser Ala Asp Thr Thr His Ser Thr Val Leu Gly Leu			1345

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Tyr Asn Thr Leu Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Pro			
365	370	375	380
cag gac ctg gag ccc ctg acc atc ctg tac tat gtt ggg agg acc ccc			1441
Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Val Gly Arg Thr Pro			
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aaa gtg gag cag ctc tcc aac atg gtg gtg aag tct tgt aaa tgt agc			1489
Lys Val Glu Gln Leu Ser Asn Met Val Val Lys Ser Cys Lys Cys Ser			
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 Phe Ala Thr Val Ser Leu Ser Leu Ser Thr Cys Thr Thr Leu Asp Phe
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 Gly His Ile Lys Lys Lys Arg Val Glu Ala Ile Arg Gly Gln Ile Leu
 35 40 45
 Ser Lys Leu Arg Leu Thr Ser Pro Pro Glu Pro Thr Val Met Thr His
 50 55 60
 Val Pro Tyr Gln Val Leu Ala Leu Tyr Asn Ser Thr Arg Glu Leu Leu
 65 70 75 80
 Glu Glu Met His Gly Glu Arg Glu Glu Gly Cys Thr Gln Glu Asn Thr
 85 90 95
 Glu Ser Glu Tyr Tyr Ala Lys Glu Ile His Lys Phe Asp Met Ile Gln
 100 105 110
 Gly Leu Ala Glu His Asn Glu Leu Ala Val Cys Pro Lys Gly Ile Thr
 115 120 125
 Ser Lys Val Phe Arg Phe Asn Val Ser Ser Val Glu Lys Asn Arg Thr
 130 135 140
 Asn Leu Phe Arg Ala Glu Phe Arg Val Leu Arg Val Pro Asn Pro Ser
 145 150 155 160
 Ser Lys Arg Asn Glu Gln Arg Ile Glu Leu Phe Gln Ile Leu Arg Pro
 165 170 175
 Asp Glu His Ile Ala Lys Gln Arg Tyr Ile Gly Gly Lys Asn Leu Pro
 180 185 190
 Thr Arg Gly Thr Ala Glu Trp Leu Ser Phe Asp Val Thr Asp Thr Val
 195 200 205
 Arg Glu Trp Leu Leu Arg Arg Glu Ser Asn Leu Gly Leu Glu Ile Ser
 210 215 220
 Ile His Cys Pro Cys His Thr Phe Gln Pro Asn Gly Asp Ile Leu Glu
 225 230 235 240

Asn Ile His Glu Val Met Glu Ile Lys Phe Lys Gly Val Asp Asn Glu
 245 250 255
 Asp Asp His Gly Arg Gly Asp Leu Gly Arg Leu Lys Lys Gln Lys Asp
 260 265 270
 His His Asn Pro His Leu Ile Leu Met Met Ile Pro Pro His Arg Leu
 275 280 285
 Asp Asn Pro Gly Gln Gly Gly Gln Arg Lys Lys Arg Ala Leu Asp Thr
 290 295 300
 Asn Tyr Cys Phe Arg Asn Leu Glu Glu Asn Cys Cys Val Arg Pro Leu
 305 310 315 320
 Tyr Ile Asp Phe Arg Gln Asp Leu Gly Trp Lys Trp Val His Glu Pro
 325 330 335
 Lys Gly Tyr Tyr Ala Asn Phe Cys Ser Gly Pro Cys Pro Tyr Leu Arg
 340 345 350
 Ser Ala Asp Thr Thr His Ser Thr Val Leu Gly Leu Tyr Asn Thr Leu
 355 360 365
 Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Pro Gln Asp Leu Glu
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 <212> PRT
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<400> 18

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Thr Asn Val Thr Ile Glu Ser Tyr Asn Met Asn Pro Ile Val Tyr Trp
 35 40 45

Glu Tyr Gln Ile Met Pro Gln Val Pro Val Phe Thr Val Glu Val Lys
 50 55 60

Asn Tyr Gly Val Lys Asn Ser Glu Trp Ile Asp Ala Cys Ile Asn Ile
 65 70 75 80

Ser His His Tyr Cys Asn Ile Ser Asp His Val Gly Asp Pro Ser Asn
 85 90 95

Ser Leu Trp Val Arg Val Lys Ala Arg Val Gly Gln Lys Glu Ser Ala
 100 105 110

Tyr Ala Lys Ser Glu Glu Phe Ala Val Cys Arg Asp Gly Lys Ile Gly
 115 120 125

Pro Pro Lys Leu Asp Ile Arg Lys Glu Glu Lys Gln Ile Met Ile Asp
 130 135 140

Ile Phe His Pro Ser Val Phe Val Asn Gly Asp Glu Gln Glu Val Asp
 145 150 155 160

Tyr Asp Pro Glu Thr Thr Cys Tyr Ile Arg Val Tyr Asn Val Tyr Val
 165 170 175

Arg Met Asn Gly Ser Glu Ile Gln Tyr Lys Ile Leu Thr Gln Lys Glu
 180 185 190

Asp Asp Cys Asp Glu Ile Gln Cys Gln Leu Ala Ile Pro Val Ser Ser
 195 200 205

Leu Asn Ser Gln Tyr Cys Val Ser Ala Glu Gly Val Leu His Val Trp
 210 215 220
 Gly Val Thr Thr Glu Lys Ser Lys Glu Val Cys Ile Thr Ile Phe Asn
 225 230 235 240
 Ser Ser Ile Lys Gly Ser Leu Trp Ile Pro Val Val Ala Ala Leu Leu
 245 250 255
 Leu Phe Leu Val Leu Ser Leu Val Phe Ile Cys Phe Tyr Ile Lys Lys
 260 265 270
 Ile Asn Pro Leu Lys Glu Lys Ser Ile Ile Leu Pro Lys Ser Leu Ile
 275 280 285
 Ser Val Val Arg Ser Ala Thr Leu Glu Thr Lys Pro Glu Ser Lys Tyr
 290 295 300
 Val Ser Leu Ile Thr Ser Tyr Gln Pro Phe Ser Leu Glu Lys Glu Val
 305 310 315 320
 Val Cys Glu Glu Pro Leu Ser Pro Ala Thr Val Pro Gly Met His Thr
 325 330 335
 Glu Asp Asn Pro Gly Lys Val Glu His Thr Glu Glu Leu Ser Ser Ile
 340 345 350
 Thr Glu Val Val Thr Thr Glu Glu Asn Ile Pro Asp Val Val Pro Gly
 355 360 365
 Ser His Leu Thr Pro Ile Glu Arg Glu Ser Ser Ser Pro Leu Ser Ser
 370 375 380
 Asn Gln Ser Glu Pro Gly Ser Ile Ala Leu Asn Ser Tyr His Ser Arg
 385 390 395 400
 Asn Cys Ser Glu Ser Asp His Ser Arg Asn Gly Phe Asp Thr Asp Ser
 405 410 415
 Ser Cys Leu Glu Ser His Ser Ser Leu Ser Asp Ser Glu Phe Pro Pro
 420 425 430
 Asn Asn Lys Gly Glu Ile Lys Thr Glu Gly Gln Glu Leu Ile Thr Val
 435 440 445

Ile Lys Ala Pro Thr Ser Phe Gly Tyr Asp Lys Pro His Val Leu Val
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Pro Thr Glu Asp Ser Lys Glu Phe Ser
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 Leu Phe Leu Leu Pro Leu Val Met Gln Gly Val Ser Arg Ala Glu Met
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ggc acc gcg gat ctg ggg ccg tcc tca gtg cct aca cca act aat gtt 153
 Gly Thr Ala Asp Leu Gly Pro Ser Ser Val Pro Thr Pro Thr Asn Val
 20 25 30 35

aca att gaa tcc tat aac atg aac cct atc gta tat tgg gag tac cag 201
 Thr Ile Glu Ser Tyr Asn Met Asn Pro Ile Val Tyr Trp Glu Tyr Gln
 40 45 50

atc atg cca cag gtc cct gtt ttt acc gta gag gta aag aac tat ggt 249
 Ile Met Pro Gln Val Pro Val Phe Thr Val Glu Val Lys Asn Tyr Gly
 55 60 65

gtt aag aat tca gaa tgg att gat gcc tgc atc aat att tct cat cat 297
 Val Lys Asn Ser Glu Trp Ile Asp Ala Cys Ile Asn Ile Ser His His
 70 75 80

tat tgt aat att tct gat cat gtt ggt gat cca tca aat tct ctt tgg 345
 Tyr Cys Asn Ile Ser Asp His Val Gly Asp Pro Ser Asn Ser Leu Trp
 85 90 95

gtc aga gtt aaa gcc agg gtt gga caa aaa gaa tct gcc tat gca aag 393
 Val Arg Val Lys Ala Arg Val Gly Gln Lys Glu Ser Ala Tyr Ala Lys
 100 105 110 115

tca gaa gaa ttt gct gta tgc cga gat gga aaa att gga cca cct aaa 441
 Ser Glu Glu Phe Ala Val Cys Arg Asp Gly Lys Ile Gly Pro Pro Lys
 120 125 130

ctg gat atc aga aag gag gag aag caa atc atg att gac ata ttt cac	489
Leu Asp Ile Arg Lys Glu Glu Lys Gln Ile Met Ile Asp Ile Phe His	
135 140 145	
cct tca gtt ttt gta aat gga gac gag cag gaa gtc gat tat gat ccc	537
Pro Ser Val Phe Val Asn Gly Asp Glu Gln Glu Val Asp Tyr Asp Pro	
150 155 160	
gaa act acc tgt tac att agg gtg tac aat gtg tat gtg aga atg aac	585
Glu Thr Thr Cys Tyr Ile Arg Val Tyr Asn Val Tyr Val Arg Met Asn	
165 170 175	
gga agt gag atc cag tat aaa ata ctc acg cag aag gaa gat gat tgt	633
Gly Ser Glu Ile Gln Tyr Lys Ile Leu Thr Gln Lys Glu Asp Asp Cys	
180 185 190 195	
gac gag att cag tgc cag tta gcg att cca gta tcc tca ctg aat tct	681
Asp Glu Ile Gln Cys Gln Leu Ala Ile Pro Val Ser Ser Leu Asn Ser	
200 205 210	
cag tac tgt gtt tca gca gaa gga gtc tta cat gtg tgg ggt gtt aca	729
Gln Tyr Cys Val Ser Ala Glu Gly Val Leu His Val Trp Gly Val Thr	
215 220 225	
act gaa aag tca aaa gaa gtt tgt att acc att ttc aat agc agt ata	777
Thr Glu Lys Ser Lys Glu Val Cys Ile Thr Ile Phe Asn Ser Ser Ile	
230 235 240	
aaa ggt tct ctt tgg att cca gtt gtt gct gct tta cta ctc ttt cta	825
Lys Gly Ser Leu Trp Ile Pro Val Val Ala Ala Leu Leu Leu Phe Leu	
245 250 255	
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Val Leu Ser Leu Val Phe Ile Cys Phe Tyr Ile	
260 265 270	

<210> 20
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 <212> PRT
 <213> Homo Sapiens

<400> 20

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Glu Tyr Gln Ile Met Pro Gln Val Pro Val Phe Thr Val Glu Val Lys	
50 55 60	

Asn Tyr Gly Val Lys Asn Ser Glu Trp Ile Asp Ala Cys Ile Asn Ile
 65 70 75 80
 Ser His His Tyr Cys Asn Ile Ser Asp His Val Gly Asp Pro Ser Asn
 85 90 95
 Ser Leu Trp Val Arg Val Lys Ala Arg Val Gly Gln Lys Glu Ser Ala
 100 105 110
 Tyr Ala Lys Ser Glu Glu Phe Ala Val Cys Arg Asp Gly Lys Ile Gly
 115 120 125
 Pro Pro Lys Leu Asp Ile Arg Lys Glu Glu Lys Gln Ile Met Ile Asp
 130 135 140
 Ile Phe His Pro Ser Val Phe Val Asn Gly Asp Glu Gln Glu Val Asp
 145 150 155 160
 Tyr Asp Pro Glu Thr Thr Cys Tyr Ile Arg Val Tyr Asn Val Tyr Val
 165 170 175
 Arg Met Asn Gly Ser Glu Ile Gln Tyr Lys Ile Leu Thr Gln Lys Glu
 180 185 190
 Asp Asp Cys Asp Glu Ile Gln Cys Gln Leu Ala Ile Pro Val Ser Ser
 195 200 205
 Leu Asn Ser Gln Tyr Cys Val Ser Ala Glu Gly Val Leu His Val Trp
 210 215 220
 Gly Val Thr Thr Glu Lys Ser Lys Glu Val Cys Ile Thr Ile Phe Asn
 225 230 235 240
 Ser Ser Ile Lys Gly Ser Leu Trp Ile Pro Val Val Ala Ala Leu Leu
 245 250 255
 Leu Phe Leu Val Leu Ser Leu Val Phe Ile Cys Phe Tyr Ile
 260 265 270

<210> 21
 <211> 1890
 <212> DNA
 <213> Mus musculus
 <220>
 <221> misc_feature
 <222> (1390)..(1390)

<223> n = a, t, c or g

<400> 21

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tttgtagccc tgctcactct tcttttcatc ccagtcttct ctgaagccat acaggtgacc	180
caaccttcag tgggtgttggc tagcagccat ggtgtcgcca gctttccatg tgaatattca	240
ccatcacaca aactgatga ggtccgggtg actgtgctgc ggcagacaaa tgaccaaag	300
actgaggtct gtgccacgac attcacagag aagaatacag tgggcttcct agattacccc	360
ttctgcagtg gtacctttaa tgaaagcaga gtgaacctca ccatccaagg actgagagct	420
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tctgctgttt ctttgagcaa gatgctaaag aaaagaagtc ctcttacaac aggggtctat	660
gtgaaaatgc ccccaacaga gccagaatgt gaaaagcaat ttcagcctta ttttattccc	720
atcaactgaa aggccgttta tgaagaagaa ggagcatact tcagtctcta aaagctgagg	780
caatttcaac tttccttttc tctccagcta tttttacctg tttgtatatt ttaaggagag	840
tatgcctctc tttaatagaa agctggagca aaattccaat taagcatact acaatttaaa	900
gctaaggagc agaacagaga gctgggatat ttctgttgtg tcagaacccat tttactaaaa	960
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tgtataatta cacgaaggtt taaacattta ttcacagaga ctatgtgaca tagccagtgg	1260
ttccaaaggt tgtagtgttc caagatgtat ttttaagtaa tattgtacat ggggtgttca	1320
tgtgctgttg tgtatttgct ggtggtttga atataaacac tatgtatcag tgtcgtccca	1380
cagtgggtcn tggggaggtt tggctgggga gcttaggaca ctaatccatc aggttggact	1440
cgaggtcctg caccaactgg cttggaaact agatgaggct gtcacagggc tcagttgcat	1500
aaaccgatgg tgatggagtg tgggctgggt ctttacactc attttatttt ttgtttctgc	1560
ttttgttttc ttcaatgatt tgcaaggaaa ccaaagctg gcagtgtttg tatgaacctg	1620
acagaacact gtcttcaagg aaatgcctca ttcctgagac cagtaggttt gtttttttag	1680

gaagttccaa tactaggacc ccctacaagt actatggctc ctcgaaaaca caaagttaat 1740
gccacaggaa gcagcagatg gtaggatggg atgcacaaga gttcctgaaa actaacactg 1800
ttagtgtttt ttttttaact caatattttc catgaaaatg caaccacatg tataatattt 1860
ttaattaaat aaaagtttct tgtgattgtt 1890

<210> 22
<211> 223
<212> PRT
<213> Mus musculus

<400> 22

Met Ala Cys Leu Gly Leu Arg Arg Tyr Lys Ala Gln Leu Gln Leu Pro
1 5 10 15

Ser Arg Thr Trp Pro Phe Val Ala Leu Leu Thr Leu Leu Phe Ile Pro
20 25 30

Val Phe Ser Glu Ala Ile Gln Val Thr Gln Pro Ser Val Val Leu Ala
35 40 45

Ser Ser His Gly Val Ala Ser Phe Pro Cys Glu Tyr Ser Pro Ser His
50 55 60

Asn Thr Asp Glu Val Arg Val Thr Val Leu Arg Gln Thr Asn Asp Gln
65 70 75 80

Met Thr Glu Val Cys Ala Thr Thr Phe Thr Glu Lys Asn Thr Val Gly
85 90 95

Phe Leu Asp Tyr Pro Phe Cys Ser Gly Thr Phe Asn Glu Ser Arg Val
100 105 110

Asn Leu Thr Ile Gln Gly Leu Arg Ala Val Asp Thr Gly Leu Tyr Leu
115 120 125

Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Phe Val Gly Met Gly
130 135 140

Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser
145 150 155 160

Asp Phe Leu Leu Trp Ile Leu Val Ala Val Ser Leu Gly Leu Phe Phe
165 170 175

Tyr Ser Phe Leu Val Ser Ala Val Ser Leu Ser Lys Met Leu Lys Lys
180 185 190

Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu
195 200 205

Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn
210 215 220

<210> 23
<211> 672
<212> DNA
<213> Homo sapiens

<400> 23
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ccctgcactc tcctgttttt tcttctcttc atccctgtct tctgcaaagc aatgcacgtg 120
gccagcctg ctgtggtact ggccagcagc cgaggcatcg ccagctttgt gtgtgagtat 180
gcatctccag gcaaagccac tgaggtccgg gtgacagtgc ttcggcaggc tgacagccag 240
gtgactgaag tctgtgcggc aacctacatg acggggaatg agttgacctt cctagatgat 300
tccatctgca cgggcacctc cagtggaaat caagtgaacc tcactatcca aggactgagg 360
gccatggaca cgggactcta catctgcaag gtggagctca tgtaccacc gccatactac 420
ctgggcatag gcaacggaac ccagatttat gtaattgatc cagaaccgtg ccagattct 480
gacttctctc tctggatcct tgcagcagtt agttcggggg tgttttttta tagctttctc 540
ctcacagctg tttctttgag caaatgcta aagaaaagaa gccctcttac aacaggggtc 600
tatgtgaaaa tgccccaac agagccagaa tgtgaaaagc aatttcagcc ttattttatt 660
cccatcaatt ga 672

<210> 24
<211> 223
<212> PRT
<213> Homo sapiens

<400> 24

Met Ala Cys Leu Gly Phe Gln Arg His Lys Ala Gln Leu Asn Leu Ala
1 5 10 15

Ala Arg Thr Trp Pro Cys Thr Leu Leu Phe Phe Leu Leu Phe Ile Pro
20 25 30

Val Phe Cys Lys Ala Met His Val Ala Gln Pro Ala Val Val Leu Ala
35 40 45

Ser Ser Arg Gly Ile Ala Ser Phe Val Cys Glu Tyr Ala Ser Pro Gly
50 55 60

Lys Ala Thr Glu Val Arg Val Thr Val Leu Arg Gln Ala Asp Ser Gln
65 70 75 80

Val Thr Glu Val Cys Ala Ala Thr Tyr Met Thr Gly Asn Glu Leu Thr
85 90 95

Phe Leu Asp Asp Ser Ile Cys Thr Gly Thr Ser Ser Gly Asn Gln Val
100 105 110

Asn Leu Thr Ile Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile
115 120 125

Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Tyr Leu Gly Ile Gly
130 135 140

Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser
145 150 155 160

Asp Phe Leu Leu Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe
165 170 175

Tyr Ser Phe Leu Leu Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys
180 185 190

Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu
195 200 205

Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn
210 215 220

<210> 25

<211> 960

<212> DNA

<213> Artificial Sequence

<220>

<223> Mus musculus CTLA4-Mus musculus IgG3

<220>

<221> CDS

<222> (1)..(960)

<223>

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tct Ser	agg Arg	act Thr	tgg Trp 20	cct Pro	ttt Phe	gta Val	gcc Ala	ctg Leu 25	ctc Leu	act Thr	ctt Leu	ctt Leu	ttc Phe 30	atc Ile	cca Pro	96
gtc Val	ttc Phe	tct Ser 35	gaa Glu	gcc Ala	ata Ile	cag Gln	gtg Val 40	acc Thr	caa Gln	cct Pro	tca Ser	gtg Val 45	gtg Val	ttg Leu	gct Ala	144
agc Ser	agc Ser 50	cat His	ggt Gly	gtc Val	gcc Ala	agc Ser 55	ttt Phe	cca Pro	tgt Cys	gaa Glu	tat Tyr 60	tca Ser	cca Pro	tca Ser	cac His	192
aac Asn 65	act Thr	gat Asp	gag Glu	gtc Val	cgg Arg 70	gtg Val	act Thr	gtg Val	ctg Leu	cgg Arg 75	cag Gln	aca Thr	aat Asn	gac Asp	caa Gln 80	240
atg Met	act Thr	gag Glu	gtc Val	tgt Cys 85	gcc Ala	acg Thr	aca Thr	ttc Phe	aca Thr 90	gag Glu	aag Lys	aat Asn	aca Thr	gtg Val 95	ggc Gly	288
ttc Phe	cta Leu	gat Asp	tac Tyr 100	ccc Pro	ttc Phe	tgc Cys	agt Ser	ggc Gly 105	acc Thr	ttt Phe	aat Asn	gaa Glu	agc Ser 110	aga Arg	gtg Val	336
aac Asn	ctc Leu	acc Thr 115	atc Ile	caa Gln	gga Gly	ctg Leu	aga Arg 120	gct Ala	gtt Val	gac Asp	acg Thr	gga Gly 125	ctg Leu	tac Tyr	ctc Leu	384
tgc Cys	aag Lys 130	gtg Val	gaa Glu	ctc Leu	atg Met	tac Tyr 135	cca Pro	ccg Pro	cca Pro	tac Tyr	ttt Phe 140	gtg Val	ggc Gly	atg Met	ggc Gly	432
aac Asn 145	ggg Gly	acg Thr	cag Gln	att Ile	tat Tyr 150	gtc Val	att Ile	gat Asp	cca Pro	gaa Glu 155	cca Pro	tgc Cys	ccg Pro	gat Asp	tct Ser 160	480
gat Asp	cag Gln	gag Glu	cct Pro	aga Arg 165	ata Ile	ccc Pro	aag Lys	ccc Pro	agt Ser 170	acc Thr	ccc Pro	cca Pro	ggc Gly	tct Ser 175	tca Ser	528
tgc Cys	cca Pro	cct Pro	ggt Gly 180	aac Asn	atc Ile	ttg Leu	ggt Gly	gga Gly 185	cca Pro	tcc Ser	gtc Val	ttc Phe	atc Ile 190	ttc Phe	ccc Pro	576
cca Pro	aag Lys 195	ccc Pro	aag Lys	gat Asp	gca Ala	ctc Leu	atg Met 200	atc Ile	tcc Ser	cta Leu	acc Thr	ccc Pro 205	aag Lys	gtt Val	acg Thr	624
tgt Cys	gtg Val 210	gtg Val	gtg Val	gat Asp	gtg Val	agc Ser 215	gag Glu	gat Asp	gac Asp	cca Pro	gat Asp 220	gtc Val	cat His	gtc Val	agc Ser	672
tgg Trp 225	ttt Phe	gtg Val	gac Asp	aac Asn 230	aaa Lys 230	gaa Glu	gta Val	cac His	aca Thr 235	gcc Ala 235	tgg Trp	acg Thr	cag Gln	ccc Pro	cgt Arg 240	720

gaa gct cag tac aac agt acc ttc cga gtg gtc agt gcc ctc ccc atc	768
Glu Ala Gln Tyr Asn Ser Thr Phe Arg Val Val Ser Ala Leu Pro Ile	
245 250 255	
cag cac cag gac tgg atg agg ggc aag gag ttc aaa tgc aag gtc aac	816
Gln His Gln Asp Trp Met Arg Gly Lys Glu Phe Lys Cys Lys Val Asn	
260 265 270	
aac aaa gcc ctc cca gcc ccc atc gag aga acc atc tca aaa ccc aaa	864
Asn Lys Ala Leu Pro Ala Pro Ile Glu Arg Thr Ile Ser Lys Pro Lys	
275 280 285	
gga aga gcc cag aca cct caa gta tac acc ata ccc cca cct cgt gaa	912
Gly Arg Ala Gln Thr Pro Gln Val Tyr Thr Ile Pro Pro Pro Arg Glu	
290 295 300	
caa atg tcc aag aag aag gtt agt ctg acc tgc ctg gtc acc aac ttc	960
Gln Met Ser Lys Lys Lys Val Ser Leu Thr Cys Leu Val Thr Asn Phe	
305 310 315 320	

<210> 26
 <211> 320
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Mus musculus CTLA4-Mus musculus IgG3
 <400> 26

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Ser Arg Thr Trp Pro Phe Val Ala Leu Leu Thr Leu Leu Phe Ile Pro	
20 25 30	
Val Phe Ser Glu Ala Ile Gln Val Thr Gln Pro Ser Val Val Leu Ala	
35 40 45	
Ser Ser His Gly Val Ala Ser Phe Pro Cys Glu Tyr Ser Pro Ser His	
50 55 60	
Asn Thr Asp Glu Val Arg Val Thr Val Leu Arg Gln Thr Asn Asp Gln	
65 70 75 80	
Met Thr Glu Val Cys Ala Thr Thr Phe Thr Glu Lys Asn Thr Val Gly	
85 90 95	
Phe Leu Asp Tyr Pro Phe Cys Ser Gly Thr Phe Asn Glu Ser Arg Val	
100 105 110	

Asn Leu Thr Ile Gln Gly Leu Arg Ala Val Asp Thr Gly Leu Tyr Leu
 115 120 125

Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Phe Val Gly Met Gly
 130 135 140

Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser
 145 150 155 160

Asp Gln Glu Pro Arg Ile Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser
 165 170 175

Cys Pro Pro Gly Asn Ile Leu Gly Gly Pro Ser Val Phe Ile Phe Pro
 180 185 190

Pro Lys Pro Lys Asp Ala Leu Met Ile Ser Leu Thr Pro Lys Val Thr
 195 200 205

Cys Val Val Val Asp Val Ser Glu Asp Asp Pro Asp Val His Val Ser
 210 215 220

Trp Phe Val Asp Asn Lys Glu Val His Thr Ala Trp Thr Gln Pro Arg
 225 230 235 240

Glu Ala Gln Tyr Asn Ser Thr Phe Arg Val Val Ser Ala Leu Pro Ile
 245 250 255

Gln His Gln Asp Trp Met Arg Gly Lys Glu Phe Lys Cys Lys Val Asn
 260 265 270

Asn Lys Ala Leu Pro Ala Pro Ile Glu Arg Thr Ile Ser Lys Pro Lys
 275 280 285

Gly Arg Ala Gln Thr Pro Gln Val Tyr Thr Ile Pro Pro Pro Arg Glu
 290 295 300

Gln Met Ser Lys Lys Lys Val Ser Leu Thr Cys Leu Val Thr Asn Phe
 305 310 315 320

<210> 27

<211> 1004

<212> DNA

<213> Homo sapiens

<400> 27

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60

ctctgcagtg cgtcctctgg ggctgcttgc tgaccgctgt ccatccagaa ccaccactg 120
 catgcagaga aaaacagtac ctaataaaca gtcagtgctg ttctttgtgc cagccaggac 180
 agaaactggt gagtgactgc acagagttca ctgaaacgga atgccttcct tgcggtgaaa 240
 gcgaattcct agacacctgg aacagagaga cacactgcca ccagcacaaa tactgcgacc 300
 ccaacctagg gcttcgggtc cagcagaagg gcacctcaga aacagacacc atctgcacct 360
 gtgaagaagg ctggcactgt acgagtgagg cctgtgagag ctgtgtcctg caccgctcat 420
 gctcgcccgg ctttggggtc aagcagattg ctacaggggt ttctgatacc atctgcgagc 480
 cctgcccagt cggcttcttc tccaatgtgt catctgcttt cgaaaaatgt cacccttgga 540
 caagctgtga gaccaaagac ctggttgtgc aacaggcagg cacaacaag actgatgttg 600
 tctgtggtcc ccaggatcgg ctgagagccc tgggtggtgat ccccatcatc ttcgggatcc 660
 tgtttgccat cctcttggtg ctggctctta tcaaaaagggt ggccaagaag ccaaccaata 720
 aggcccccca cccaagcag gaaccccagg agatcaattt tcccgacgat cttcctggct 780
 ccaacactgc tgctccagtg caggagactt tacatggatg ccaaccggtc acccaggagg 840
 atggcaaaga gagtcgcata tcagtgcagg agagacagtg aggctgcacc caccaggag 900
 tgtggccacg tgggcaaaca ggcagttggc cagagagcct ggtgctgctg ctgcaggggt 960
 gcaggcagaa gcggggagct atgccagtc agtgccagcc cctc 1004

<210> 28
 <211> 277
 <212> PRT
 <213> Homo sapiens

<400> 28

Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
 1 5 10 15

Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
 20 25 30

Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
 35 40 45

Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
 50 55 60

Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
 65 70 75 80

Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
85 90 95

Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
100 105 110

Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
115 120 125

Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
130 135 140

Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
145 150 155 160

Cys His Pro Trp Thr Ser Cys Glu Thr Lys Asp Leu Val Val Gln Gln
165 170 175

Ala Gly Thr Asn Lys Thr Asp Val Val Cys Gly Pro Gln Asp Arg Leu
180 185 190

Arg Ala Leu Val Val Ile Pro Ile Ile Phe Gly Ile Leu Phe Ala Ile
195 200 205

Leu Leu Val Leu Val Phe Ile Lys Lys Val Ala Lys Lys Pro Thr Asn
210 215 220

Lys Ala Pro His Pro Lys Gln Glu Pro Gln Glu Ile Asn Phe Pro Asp
225 230 235 240

Asp Leu Pro Gly Ser Asn Thr Ala Ala Pro Val Gln Glu Thr Leu His
245 250 255

Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile Ser
260 265 270

Val Gln Glu Arg Gln
275

<210> 29

<211> 1890

<212> DNA

<213> Homo sapiens

<400> 29

aaacagagag agatagagaa agagaaagac agaggtgttt cccttagcta tggaaactct

60

ataagagaga tccagcttgc ctctctttga gcagtcagca acaggggtccc gtccttgaca	120
cctcagcctc tacaggactg agaagaagta aaaccgtttg ctggggctgg cctgactcac	180
cagctgccat gcagcagccc ttcaattacc catatcccca gatctactgg gtggacagca	240
gtgccagctc tccctggggc cctccaggca cagttcttcc ctgtccaacc tctgtgcca	300
gaaggcctgg tcaaaggagg ccaccaccac caccgccacc gccaccacta ccacctccgc	360
cgccgccgcc accactgcct ccactaccgc tggcaccct gaagaagaga ggaaccaca	420
gcacaggcct gtgtctcctt gtgatgtttt tcatggttct ggttgccctg gtaggattgg	480
gcctggggat gtttcagctc ttccacctac agaaggagct ggcagaactc cgagagtcta	540
ccagccagat gcacacagca tcatcttttg agaagcaa ataggccacccc agtccacccc	600
ctgaaaaaaaa ggagctgagg aaagtggccc atttaacagg caagtccaac tcaaggtcca	660
tgcctctgga atgggaagac acctatggaa ttgtcctgct ttctggagtg aagtataaga	720
aggggtggcct tgtgatcaat gaaactgggc tgtactttgt atattccaaa gtatacttcc	780
gggggtcaatc ttgcaacaac ctgcccctga gccacaaggt ctacatgagg aactctaagt	840
atccccagga tctggtgatg atggagggga agatgatgag ctactgcact actgggcaga	900
tgtgggcccc cagcagctac ctggggggcag tgttcaatct taccagtgt gatcatttat	960
atgtcaacgt atctgagctc tctctggtca attttgagga atctcagacg tttttcggct	1020
tatataagct ctaagagaag cactttggga ttctttccat tatgattctt tgttacaggc	1080
accgagaatg ttgtattcag tgagggtctt cttacatgca tttgaggtca agtaagaaga	1140
catgaaccaa gtggaccttg agaccacagg gttcaaatg tctgtagctc ctcaactcac	1200
ctaattgttta tgagccagac aaatggagga atatgacgga agaacataga actctgggct	1260
gccatgtgaa gagggagaag catgaaaaag cagctaccca ggtgttctac actcatctta	1320
gtgcctgaga gtatttaggc agattgaaaa ggacacctt taactcacct ctcaaggtgg	1380
gccttgctac ctcaaggggg actgtctttc agatacatgg ttgtgacctg aggatttaag	1440
ggatggaaaa ggaagactag aggccttgc ataatagctaa agaggctgaa agaggccaat	1500
gccccactgg cagcatcttc acttctaaat gcatactctg agccatcggt gaaactaaca	1560
gataagcaag agagatgttt tggggactca tttcattcct aacacagcat gtgtatttcc	1620
agtgccaat gtagggggtgt gtgtgtgtgt gtgtgtgtgt gtgtatgact aaagagagaa	1680
tgtagatatt gtgaagtaca tattaggaaa atatgggttg catttggtca agattttgaa	1740
tgcttctga caatcaactc taatagtgt taaaaatcat tgattgtcag ctactaatga	1800
tgttttctta taatataata aatatttatg tagatgtgca tttttgtgaa atgaaaacat	1860

gtaataaaaa gtatatgtta ggatacaaat

1890

<210> 30
<211> 281
<212> PRT
<213> Homo sapiens

<400> 30

Met Gln Gln Pro Phe Asn Tyr Pro Tyr Pro Gln Ile Tyr Trp Val Asp
1 5 10 15

Ser Ser Ala Ser Ser Pro Trp Ala Pro Pro Gly Thr Val Leu Pro Cys
20 25 30

Pro Thr Ser Val Pro Arg Arg Pro Gly Gln Arg Arg Pro Pro Pro Pro
35 40 45

Pro Pro Pro Pro Pro Leu Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro
50 55 60

Pro Leu Pro Leu Pro Pro Leu Lys Lys Arg Gly Asn His Ser Thr Gly
65 70 75 80

Leu Cys Leu Leu Val Met Phe Phe Met Val Leu Val Ala Leu Val Gly
85 90 95

Leu Gly Leu Gly Met Phe Gln Leu Phe His Leu Gln Lys Glu Leu Ala
100 105 110

Glu Leu Arg Glu Ser Thr Ser Gln Met His Thr Ala Ser Ser Leu Glu
115 120 125

Lys Gln Ile Gly His Pro Ser Pro Pro Pro Glu Lys Lys Glu Leu Arg
130 135 140

Lys Val Ala His Leu Thr Gly Lys Ser Asn Ser Arg Ser Met Pro Leu
145 150 155 160

Glu Trp Glu Asp Thr Tyr Gly Ile Val Leu Leu Ser Gly Val Lys Tyr
165 170 175

Lys Lys Gly Gly Leu Val Ile Asn Glu Thr Gly Leu Tyr Phe Val Tyr
180 185 190

Ser Lys Val Tyr Phe Arg Gly Gln Ser Cys Asn Asn Leu Pro Leu Ser
195 200 205

His Lys Val Tyr Met Arg Asn Ser Lys Tyr Pro Gln Asp Leu Val Met
 210 215 220

Met Glu Gly Lys Met Met Ser Tyr Cys Thr Thr Gly Gln Met Trp Ala
 225 230 235 240

Arg Ser Ser Tyr Leu Gly Ala Val Phe Asn Leu Thr Ser Ala Asp His
 245 250 255

Leu Tyr Val Asn Val Ser Glu Leu Ser Leu Val Asn Phe Glu Glu Ser
 260 265 270

Gln Thr Phe Phe Gly Leu Tyr Lys Leu
 275 280

<210> 31
 <211> 1803
 <212> DNA
 <213> Homo sapiens

<400> 31
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 tatttactta ctgtttttct tatcaccag atgattgggt cagcactttt tgctgtgtat 180
 cttcatagaa ggttggacaa gatagaagat gaaaggaatc ttcatagaaga ttttgtattc 240
 atgaaaacga tacagagatg caacacagga gaaagatcct tacccttact gaactgtgag 300
 gagattaaaa gccagtttga aggcctttgtg aaggatataa tgttaaacia agaggagacg 360
 aagaaagaaa acagctttga aatgcaaaaa ggtgatcaga atcctcaaat tgcggcacat 420
 gtcataagtg aggccagcag taaaacaaca tctgtgttac agtgggctga aaaaggatac 480
 tacaccatga gcaacaactt ggtaaccctg gaaaatggga aacagctgac cgttaaaaga 540
 caaggactct attatatcta tgcccaagtc accttctgtt ccaatcgga agcttcgagt 600
 caagctccat ttatagccag cctctgccta aagtcccccg gtagattcga gagaatctta 660
 ctcagagctg caaatacca cagttccgcc aaaccttgcg ggcaacaatc cattcacttg 720
 ggaggagtat ttgaattgca accaggtgct tcggtgtttg tcaatgtgac tgatccaagc 780
 caagtgaagg atggcactgg cttcacgtcc ttggccttac tcaaactctg aacagtgtca 840
 ccttgaggc tgtggtggag ctgacgtgg gagtcttcat aatacagcac agcggttaag 900
 cccacccct gttaactgcc tatttataac cctaggatcc tccttatgga gaactattta 960

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<210> 32
<211> 261
<212> PRT
<213> Homo sapiens

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<400> 32
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Met Ile Glu Thr Tyr Asn Gln Thr Ser Pro Arg Ser Ala Ala Thr Gly
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Leu Pro Ile Ser Met Lys Ile Phe Met Tyr Leu Leu Thr Val Phe Leu
          20           25           30

```

```

Ile Thr Gln Met Ile Gly Ser Ala Leu Phe Ala Val Tyr Leu His Arg
          35           40           45

```

```

Arg Leu Asp Lys Ile Glu Asp Glu Arg Asn Leu His Glu Asp Phe Val
          50           55           60

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```

Phe Met Lys Thr Ile Gln Arg Cys Asn Thr Gly Glu Arg Ser Leu Ser
65           70           75           80

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Leu Leu Asn Cys Glu Glu Ile Lys Ser Gln Phe Glu Gly Phe Val Lys
          85           90           95

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Asp Ile Met Leu Asn Lys Glu Glu Thr Lys Lys Glu Asn Ser Phe Glu
100 105 110

Met Gln Lys Gly Asp Gln Asn Pro Gln Ile Ala Ala His Val Ile Ser
115 120 125

Glu Ala Ser Ser Lys Thr Thr Ser Val Leu Gln Trp Ala Glu Lys Gly
130 135 140

Tyr Tyr Thr Met Ser Asn Asn Leu Val Thr Leu Glu Asn Gly Lys Gln
145 150 155 160

Leu Thr Val Lys Arg Gln Gly Leu Tyr Tyr Ile Tyr Ala Gln Val Thr
165 170 175

Phe Cys Ser Asn Arg Glu Ala Ser Ser Gln Ala Pro Phe Ile Ala Ser
180 185 190

Leu Cys Leu Lys Ser Pro Gly Arg Phe Glu Arg Ile Leu Leu Arg Ala
195 200 205

Ala Asn Thr His Ser Ser Ala Lys Pro Cys Gly Gln Gln Ser Ile His
210 215 220

Leu Gly Gly Val Phe Glu Leu Gln Pro Gly Ala Ser Val Phe Val Asn
225 230 235 240

Val Thr Asp Pro Ser Gln Val Ser His Gly Thr Gly Phe Thr Ser Phe
245 250 255

Gly Leu Leu Lys Leu
260

<210> 33
<211> 1212
<212> DNA
<213> Mus musculus

<400> 33
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gtgcgacagc ggccctgggct ctctaggtcc cgacgcagcg gctcccggag gaccaggtct 180
gggcgcagag cttggcccag agctgtcgtg ggcgcacctta gtctttggct acgtcactga 240

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 cgggtgcagga gtgttgggtg ctgagagagg gggccacacg gcattgcact tggcctgccg 480
 ggtcagggca cacacgtgcg cgtgctgact gctccagccc cgtcccagcc acccaagaga 540
 tgccctcagat acctacctca ctacagagcca ggactgtacc ccagacacca gccatgcccc 600
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 ccacaaagat gcagagatgg tccggctgct cagggatgcc ggagccgacc tcaataaacc 780
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 cccgcttggc agtgccctgc tccggcccaa cccatcctt gccgcctcc tccgtgcaca 960
 tggggcccct gaacctgagg acgaggacga taagcttagc ccttgacgca gcagcggcag 1020
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 tggcaggagc caaaaccgac aaccgccttc cccggcatcc aaacctcttc ctgatgacct 1140
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<210> 34
 <211> 359
 <212> PRT
 <213> Mus musculus

<400> 34

Met Ala Gly Val Ala Cys Leu Gly Lys Thr Ala Asp Ala Asp Glu Trp
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Cys Asp Ser Gly Leu Gly Ser Leu Gly Pro Asp Ala Ala Ala Pro Gly
 20 25 30

Gly Pro Gly Leu Gly Ala Glu Leu Gly Pro Glu Leu Ser Trp Ala Pro
 35 40 45

Leu Val Phe Gly Tyr Val Thr Glu Asp Gly Asp Thr Ala Leu His Leu
 50 55 60

Ala Val Ile His Gln His Glu Pro Phe Leu Asp Phe Leu Leu Gly Phe
 65 70 75 80

Ser Ala Gly His Glu Tyr Leu Asp Leu Gln Asn Asp Leu Gly Gln Thr
 85 90 95

Ala Leu His Leu Ala Ala Ile Leu Gly Glu Ala Ser Thr Val Glu Lys
 100 105 110

Leu Tyr Ala Ala Gly Ala Gly Val Leu Val Ala Glu Arg Gly Gly His
 115 120 125

Thr Ala Leu His Leu Ala Cys Arg Val Arg Ala His Thr Cys Ala Cys
 130 135 140

Val Leu Leu Gln Pro Arg Pro Ser His Pro Arg Asp Ala Ser Asp Thr
 145 150 155 160

Tyr Leu Thr Gln Ser Gln Asp Cys Thr Pro Asp Thr Ser His Ala Pro
 165 170 175

Ala Ala Val Asp Ser Gln Pro Asn Pro Glu Asn Glu Glu Glu Pro Arg
 180 185 190

Asp Glu Asp Trp Arg Leu Gln Leu Glu Ala Glu Asn Tyr Asp Gly His
 195 200 205

Thr Pro Leu His Val Ala Val Ile His Lys Asp Ala Glu Met Val Arg
 210 215 220

Leu Leu Arg Asp Ala Gly Ala Asp Leu Asn Lys Pro Glu Pro Thr Cys
 225 230 235 240

Gly Arg Thr Pro Leu His Leu Ala Val Glu Ala Gln Ala Ala Ser Val
 245 250 255

Leu Glu Leu Leu Leu Lys Ala Gly Ala Asp Pro Thr Ala Arg Met Tyr
 260 265 270

Gly Gly Arg Thr Pro Leu Gly Ser Ala Leu Leu Arg Pro Asn Pro Ile
 275 280 285

Leu Ala Arg Leu Leu Arg Ala His Gly Ala Pro Glu Pro Glu Asp Glu
 290 295 300

Asp Asp Lys Leu Ser Pro Cys Ser Ser Ser Gly Ser Asp Ser Asp Ser
 305 310 315 320

Asp Asn Arg Asp Glu Gly Asp Glu Tyr Asp Asp Ile Val Val His Ser
 325 330 335

Gly Arg Ser Gln Asn Arg Gln Pro Pro Ser Pro Ala Ser Lys Pro Leu
 340 345 350

Pro Asp Asp Pro Asn Pro Ala
 355

<210> 35
 <211> 1769
 <212> DNA
 <213> Homo sapiens

<400> 35
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 ctgggacaga cctgcgtgct gatcgtgac ttcacagtgc tcctgcagtc tctctgtgtg 180
 gctgtaactt acgtgtactt taccaacgag ctgaagcaga tgcaggacaa gtactccaaa 240
 agtggcattg cttgtttctt aaaagaagat gacagttatt gggaccccaa tgacgaagag 300
 agtatgaaca gcccctgctg gcaagtcaag tggcaactcc gtcagctcgt tagaaagatg 360
 attttgagaa cctctgagga aaccatttct acagttcaag aaaagcaaca aaatatttct 420
 ccctagtga gagaaagagg tcctcagaga gtagcagctc acataactgg gaccagagga 480
 agaagcaaca cattgtcttc tccaaactcc aagaatgaaa aggctctggg ccgcaaaata 540
 aactcctggg aatcatcaag gagtgggcat tcattcctga gcaacttgca cttgaggaat 600
 ggtgaactgg tcatccatga aaaaggggtt tactacatct attcccaaac atactttcga 660
 tttcaggagg aaataaaaga aaacacaaag aacgacaaac aaatgggtcca atatatttac 720
 aaatacacia gttatcctga ccctatatattg ttgatgaaaa gtgctagaaa tagttgttgg 780
 tctaaagatg cagaatatgg actctattcc atctatcaag ggggaatatt tgagcttaag 840
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 aatgaaattg ctgaaagatc tttcaggact ctacctcata tcagtttgct agcagaaatc 1200

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 cagtgtggtg agatcatgcc actacactcc agcctggcga cagagcgaga cttgggtttca 1680
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 tacagtatgt caaaaaaaaaa aaaaaaaaaa 1769

<210> 36
 <211> 281
 <212> PRT
 <213> Homo sapiens

<400> 36

Met Ala Met Met Glu Val Gln Gly Gly Pro Ser Leu Gly Gln Thr Cys
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Val Leu Ile Val Ile Phe Thr Val Leu Leu Gln Ser Leu Cys Val Ala
 20 25 30

Val Thr Tyr Val Tyr Phe Thr Asn Glu Leu Lys Gln Met Gln Asp Lys
 35 40 45

Tyr Ser Lys Ser Gly Ile Ala Cys Phe Leu Lys Glu Asp Asp Ser Tyr
 50 55 60

Trp Asp Pro Asn Asp Glu Glu Ser Met Asn Ser Pro Cys Trp Gln Val
 65 70 75 80

Lys Trp Gln Leu Arg Gln Leu Val Arg Lys Met Ile Leu Arg Thr Ser
 85 90 95

Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro
 100 105 110

Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly
 115 120 125

Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu
 130 135 140

Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly
 145 150 155 160

His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile
 165 170 175

His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe
 180 185 190

Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln
 195 200 205

Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys
 210 215 220

Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr
 225 230 235 240

Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile
 245 250 255

Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala
 260 265 270

Ser Phe Phe Gly Ala Phe Leu Val Gly
 275 280

<210> 37
 <211> 4150
 <212> DNA
 <213> Homo sapiens

<400> 37
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 gaccttcagt atcacaacct cagcaagcag cagaatgagt cccgcagcc cctcgtggag 420

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gggtgaaaga	tggaacttgc	tgctgagtgc	accacttcaa	gtgaccacca	ggagggtgcta	4020

tcgcaccact gtgtatttaa ctgccttgtg tacagttatt tatgcctctg tatttaaaaa 4080
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 agatatttac 4150

<210> 38
 <211> 1153
 <212> PRT
 <213> Homo sapiens
 <400> 38

Met Ala Cys Pro Trp Lys Phe Leu Phe Lys Thr Lys Phe His Gln Tyr
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Ala Met Asn Gly Glu Lys Asp Ile Asn Asn Asn Val Glu Lys Ala Pro
 20 25 30

Cys Ala Thr Ser Ser Pro Val Thr Gln Asp Asp Leu Gln Tyr His Asn
 35 40 45

Leu Ser Lys Gln Gln Asn Glu Ser Pro Gln Pro Leu Val Glu Thr Gly
 50 55 60

Lys Lys Ser Pro Glu Ser Leu Val Lys Leu Asp Ala Thr Pro Leu Ser
 65 70 75 80

Ser Pro Arg His Val Arg Ile Lys Asn Trp Gly Ser Gly Met Thr Phe
 85 90 95

Gln Asp Thr Leu His His Lys Ala Lys Gly Ile Leu Thr Cys Arg Ser
 100 105 110

Lys Ser Cys Leu Gly Ser Ile Met Thr Pro Lys Ser Leu Thr Arg Gly
 115 120 125

Pro Arg Asp Lys Pro Thr Pro Pro Asp Glu Leu Leu Pro Gln Ala Ile
 130 135 140

Glu Phe Val Asn Gln Tyr Tyr Gly Ser Phe Lys Glu Ala Lys Ile Glu
 145 150 155 160

Glu His Leu Ala Arg Val Glu Ala Val Thr Lys Glu Ile Glu Thr Thr
 165 170 175

Gly Thr Tyr Gln Leu Thr Gly Asp Glu Leu Ile Phe Ala Thr Lys Gln
 180 185 190

Ala Trp Arg Asn Ala Pro Arg Cys Ile Gly Arg Ile Gln Trp Ser Asn
 195 200 205
 Leu Gln Val Phe Asp Ala Arg Ser Cys Ser Thr Ala Arg Glu Met Phe
 210 215 220
 Glu His Ile Cys Arg His Val Arg Tyr Ser Thr Asn Asn Gly Asn Ile
 225 230 235 240
 Arg Ser Ala Ile Thr Val Phe Pro Gln Arg Ser Asp Gly Lys His Asp
 245 250 255
 Phe Arg Val Trp Asn Ala Gln Leu Ile His Tyr Ala Gly Tyr Gln Met
 260 265 270
 Pro Asp Gly Ser Ile Arg Gly Asp Pro Ala Asn Val Glu Phe Thr Gln
 275 280 285
 Leu Cys Ile Asp Leu Gly Trp Lys Pro Lys Tyr Gly Arg Phe Asp Val
 290 295 300
 Val Pro Leu Val Leu Gln Ala Asn Gly Arg Asp Pro Glu Leu Phe Glu
 305 310 315 320
 Ile Pro Pro Asp Leu Val Leu Glu Val Ala Met Glu His Pro Lys Tyr
 325 330 335
 Glu Trp Phe Arg Glu Leu Glu Leu Lys Trp Tyr Ala Leu Pro Ala Val
 340 345 350
 Ala Asn Met Leu Leu Glu Val Gly Gly Leu Glu Phe Pro Gly Cys Pro
 355 360 365
 Phe Asn Gly Trp Tyr Met Gly Thr Glu Ile Gly Val Arg Asp Phe Cys
 370 375 380
 Asp Val Gln Arg Tyr Asn Ile Leu Glu Glu Val Gly Arg Arg Met Gly
 385 390 395 400
 Leu Glu Thr His Lys Leu Ala Ser Leu Trp Lys Asp Gln Ala Val Val
 405 410 415
 Glu Ile Asn Ile Ala Val Leu His Ser Phe Gln Lys Gln Asn Val Thr
 420 425 430

Ile Met Asp His His Ser Thr Ala Glu Ser Phe Met Lys Tyr Met Gln
 435 440 445
 Asn Glu Tyr Arg Ser Arg Gly Gly Cys Pro Ala Asp Trp Ile Trp Leu
 450 455 460
 Val Pro Pro Met Ser Gly Ser Ile Thr Pro Val Phe His Gln Glu Met
 465 470 475 480
 Leu Asn Tyr Val Leu Ser Pro Phe Tyr Tyr Tyr Gln Val Glu Ala Trp
 485 490 495
 Lys Thr His Val Trp Gln Asp Glu Lys Arg Arg Pro Lys Arg Arg Glu
 500 505 510
 Ile Pro Leu Lys Val Leu Val Lys Ala Val Leu Phe Ala Cys Met Leu
 515 520 525
 Met Arg Lys Thr Met Ala Ser Arg Val Arg Val Thr Ile Leu Phe Ala
 530 535 540
 Thr Glu Thr Gly Lys Ser Glu Ala Leu Ala Trp Asp Leu Gly Ala Leu
 545 550 555 560
 Phe Ser Cys Ala Phe Asn Pro Lys Val Val Cys Met Asp Lys Tyr Arg
 565 570 575
 Leu Ser Cys Leu Glu Glu Glu Arg Leu Leu Leu Val Val Thr Ser Thr
 580 585 590
 Phe Gly Asn Gly Asp Cys Pro Gly Asn Gly Glu Lys Leu Lys Lys Ser
 595 600 605
 Leu Phe Met Leu Lys Glu Leu Asn Asn Lys Phe Arg Tyr Ala Val Phe
 610 615 620
 Gly Leu Gly Ser Ser Met Tyr Pro Arg Phe Cys Ala Phe Ala His Asp
 625 630 635 640
 Ile Asp Gln Lys Leu Ser His Leu Gly Ala Ser Gln Leu Thr Pro Met
 645 650 655
 Gly Glu Gly Asp Glu Leu Ser Gly Gln Glu Asp Ala Phe Arg Ser Trp
 660 665 670

Ala	Val	Gln	Thr	Phe	Lys	Ala	Ala	Cys	Glu	Thr	Phe	Asp	Val	Arg	Gly	
		675					680					685				
Lys	Gln	His	Ile	Gln	Ile	Pro	Lys	Leu	Tyr	Thr	Ser	Asn	Val	Thr	Trp	
	690					695					700					
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Ser	Lys	Ala	Leu	Ser	Ser	Met	His	Ala	Lys	Asn	Val	Phe	Thr	Met	Arg	
			725						730					735		
Leu	Lys	Ser	Arg	Gln	Asn	Leu	Gln	Ser	Pro	Thr	Ser	Ser	Arg	Ala	Thr	
			740					745					750			
Ile	Leu	Val	Glu	Leu	Ser	Cys	Glu	Asp	Gly	Gln	Gly	Leu	Asn	Tyr	Leu	
	755						760					765				
Pro	Gly	Glu	His	Leu	Gly	Val	Cys	Pro	Gly	Asn	Gln	Pro	Ala	Leu	Val	
	770					775					780					
Gln	Gly	Ile	Leu	Glu	Arg	Val	Val	Asp	Gly	Pro	Thr	Pro	His	Gln	Thr	
785					790					795					800	
Val	Arg	Leu	Glu	Ala	Leu	Asp	Glu	Ser	Gly	Ser	Tyr	Trp	Val	Ser	Asp	
				805					810					815		
Lys	Arg	Leu	Pro	Pro	Cys	Ser	Leu	Ser	Gln	Ala	Leu	Thr	Tyr	Phe	Leu	
			820					825					830			
Asp	Ile	Thr	Thr	Pro	Pro	Thr	Gln	Leu	Leu	Leu	Gln	Lys	Leu	Ala	Gln	
		835					840					845				
Val	Ala	Thr	Glu	Glu	Pro	Glu	Arg	Gln	Arg	Leu	Glu	Ala	Leu	Cys	Gln	
	850					855					860					
Pro	Ser	Glu	Tyr	Ser	Lys	Trp	Lys	Phe	Thr	Asn	Ser	Pro	Thr	Phe	Leu	
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Glu	Val	Leu	Glu	Glu	Phe	Pro	Ser	Leu	Arg	Val	Ser	Ala	Gly	Phe	Leu	
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Leu	Ser	Gln	Leu	Pro	Ile	Leu	Lys	Pro	Arg	Phe	Tyr	Ser	Ile	Ser	Ser	
		900						905					910			

Ser Arg Asp His Thr Pro Thr Glu Ile His Leu Thr Val Ala Val Val
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Thr Tyr His Thr Arg Asp Gly Gln Gly Pro Leu His His Gly Val Cys
930 935 940

Ser Thr Trp Leu Asn Ser Leu Lys Pro Gln Asp Pro Val Pro Cys Phe
945 950 955 960

Val Arg Asn Ala Ser Gly Phe His Leu Pro Glu Asp Pro Ser His Pro
965 970 975

Cys Ile Leu Ile Gly Pro Gly Thr Gly Ile Ala Pro Phe Arg Ser Phe
980 985 990

Trp Gln Gln Arg Leu His Asp Ser Gln His Lys Gly Val Arg Gly Gly
995 1000 1005

Arg Met Thr Leu Val Phe Gly Cys Arg Arg Pro Asp Glu Asp His
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Ile Tyr Gln Glu Glu Met Leu Glu Met Ala Gln Lys Gly Val Leu
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His Ala Val His Thr Ala Tyr Ser Arg Leu Pro Gly Lys Pro Lys
1040 1045 1050

Val Tyr Val Gln Asp Ile Leu Arg Gln Gln Leu Ala Ser Glu Val
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Leu Arg Val Leu His Lys Glu Pro Gly His Leu Tyr Val Cys Gly
1070 1075 1080

Asp Val Arg Met Ala Arg Asp Val Ala His Thr Leu Lys Gln Leu
1085 1090 1095

Val Ala Ala Lys Leu Lys Leu Asn Glu Glu Gln Val Glu Asp Tyr
1100 1105 1110

Phe Phe Gln Leu Lys Ser Gln Lys Arg Tyr His Glu Asp Ile Phe
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 35 40 45
 Asp Gln Ser Val Ser Leu Ser Ile Ser Glu Thr Ser Lys Thr Ser Lys
 50 55 60
 Leu Thr Phe Lys Glu Ser Met Val Val Val Ala Thr Asn Gly Lys Val
 65 70 75 80
 Leu Lys Lys Arg Arg Leu Ser Leu Ser Gln Ser Ile Thr Asp Asp Asp
 85 90 95
 Leu Glu Ala Ile Ala Asn Asp Ser Glu Glu Glu Ile Ile Lys Pro Arg
 100 105 110
 Ser Ala Pro Phe Ser Phe Leu Ser Asn Val Lys Tyr Asn Phe Met Arg
 115 120 125
 Ile Ile Lys Tyr Glu Phe Ile Leu Asn Asp Ala Leu Asn Gln Ser Ile
 130 135 140
 Ile Arg Ala Asn Asp Gln Tyr Leu Thr Ala Ala Ala Leu His Asn Leu
 145 150 155 160
 Asp Glu Ala Val Lys Phe Asp Met Gly Ala Tyr Lys Ser Ser Lys Asp
 165 170 175
 Asp Ala Lys Ile Thr Val Ile Leu Arg Ile Ser Lys Thr Gln Leu Tyr
 180 185 190
 Val Thr Ala Gln Asp Glu Asp Gln Pro Val Leu Leu Lys Glu Met Pro
 195 200 205
 Glu Ile Pro Lys Thr Ile Thr Gly Ser Glu Thr Asn Leu Leu Phe Phe
 210 215 220
 Trp Glu Thr His Gly Thr Lys Asn Tyr Phe Thr Ser Val Ala His Pro
 225 230 235 240

Asn Leu Phe Ile Ala Thr Lys Gln Asp Tyr Trp Val Cys Leu Ala Gly
 245 250 255

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<400> 42

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Met Gly Glu Gly Thr Ile Asn Gly Leu Leu Asp Glu Leu Leu Gln Thr
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Arg Val Leu Asn Lys Glu Glu Met Glu Lys Val Lys Arg Glu Asn Ala
 35 40 45

Thr Val Met Asp Lys Thr Arg Ala Leu Ile Asp Ser Val Ile Pro Lys
 50 55 60

Gly Ala Gln Ala Cys Gln Ile Cys Ile Thr Tyr Ile Cys Glu Glu Asp
 65 70 75 80

Ser Tyr Leu Ala Gly Thr Leu Gly Leu Ser Ala Asp Gln Thr Ser Gly
 85 90 95

Asn Tyr Leu Asn Met Gln Asp Ser Gln Gly Val Leu Ser Ser Phe Pro
 100 105 110

Ala Pro Gln Ala Val Gln Asp Asn Pro Ala Met Pro Thr Ser Ser Gly
 115 120 125

Ser Glu Gly Asn Val Lys Leu Cys Ser Leu Glu Glu Ala Gln Arg Ile
 130 135 140

Trp Lys Gln Lys Ser Ala Glu Ile Tyr Pro Ile Met Asp Lys Ser Ser
 145 150 155 160

Arg Thr Arg Leu Ala Leu Ile Ile Cys Asn Glu Glu Phe Asp Ser Ile
 165 170 175

Pro Arg Arg Thr Gly Ala Glu Val Asp Ile Thr Gly Met Thr Met Leu
 180 185 190

Leu Gln Asn Leu Gly Tyr Ser Val Asp Val Lys Lys Asn Leu Thr Ala
 195 200 205

Ser Asp Met Thr Thr Glu Leu Glu Ala Phe Ala His Arg Pro Glu His
 210 215 220

Lys Thr Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Gly Ile Arg
 225 230 235 240

Glu Gly Ile Cys Gly Lys Lys His Ser Glu Gln Val Pro Asp Ile Leu
 245 250 255

Gln Leu Asn Ala Ile Phe Asn Met Leu Asn Thr Lys Asn Cys Pro Ser
 260 265 270

Leu Lys Asp Lys Pro Lys Val Ile Ile Ile Gln Ala Cys Arg Gly Asp
 275 280 285

Ser Pro Gly Val Val Trp Phe Lys Asp Ser Val Gly Val Ser Gly Asn
 290 295 300

Leu Ser Leu Pro Thr Thr Glu Glu Phe Glu Asp Asp Ala Ile Lys Lys
 305 310 315 320

Ala His Ile Glu Lys Asp Phe Ile Ala Phe Cys Ser Ser Thr Pro Asp
 325 330 335

Asn Val Ser Trp Arg His Pro Thr Met Gly Ser Val Phe Ile Gly Arg
 340 345 350

Leu Ile Glu His Met Gln Glu Tyr Ala Cys Ser Cys Asp Val Glu Glu
 355 360 365

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 <211> 153
 <212> PRT
 <213> Homo sapiens

<400> 44

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Val Thr Asn Ser Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu
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Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile
 35 40 45

Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
 50 55 60

Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
 65 70 75 80

Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
 85 90 95

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
 100 105 110

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
 115 120 125

Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe
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Cys Gln Ser Ile Ile Ser Thr Leu Thr
 145 150

<210> 45
 <211> 924
 <212> DNA
 <213> Homo sapiens

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 cccagacaac gcccttgaag acaagctggg ttaactgctc taacatgata gatgaaatta 180
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gtgagaataa actagactct gaac	924

<210> 46
 <211> 152
 <212> PRT
 <213> Homo sapiens

<400> 46

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Gly Leu Gln Ala Pro Met Thr Gln Thr Thr Pro Leu Lys Thr Ser Trp	
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Val Asn Cys Ser Asn Met Ile Asp Glu Ile Ile Thr His Leu Lys Gln	
35 40 45	

Pro Pro Leu Pro Leu Leu Asp Phe Asn Asn Leu Asn Gly Glu Asp Gln	
50 55 60	

Asp Ile Leu Met Glu Asn Asn Leu Arg Arg Pro Asn Leu Glu Ala Phe	
65 70 75 80	

Asn Arg Ala Val Lys Ser Leu Gln Asn Ala Ser Ala Ile Glu Ser Ile	
85 90 95	

Leu Lys Asn Leu Leu Pro Cys Leu Pro Leu Ala Thr Ala Ala Pro Thr	
100 105 110	

Arg His Pro Ile His Ile Lys Asp Gly Asp Trp Asn Glu Phe Arg Arg	
115 120 125	

Lys Leu Thr Phe Tyr Leu Lys Thr Leu Glu Asn Ala Gln Ala Gln Gln	
130 135 140	

Thr Thr Leu Ser Leu Ala Ile Phe	
145 150	

<210> 47
 <211> 921

<212> DNA
 <213> Homo sapiens

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<210> 48
 <211> 153
 <212> PRT
 <213> Homo sapiens

<400> 48
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 Cys Ala Gly Asn Phe Val His Gly His Lys Cys Asp Ile Thr Leu Gln
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 Glu Ile Ile Lys Thr Leu Asn Ser Leu Thr Glu Gln Lys Thr Leu Cys
 35 40 45
 Thr Glu Leu Thr Val Thr Asp Ile Phe Ala Ala Ser Lys Asn Thr Thr
 50 55 60

Glu Lys Glu Thr Phe Cys Arg Ala Ala Thr Val Leu Arg Gln Phe Tyr
65 70 75 80

Ser His His Glu Lys Asp Thr Arg Cys Leu Gly Ala Thr Ala Gln Gln
85 90 95

Phe His Arg His Lys Gln Leu Ile Arg Phe Leu Lys Arg Leu Asp Arg
100 105 110

Asn Leu Trp Gly Leu Ala Gly Leu Asn Ser Cys Pro Val Lys Glu Ala
115 120 125

Asn Gln Ser Thr Leu Glu Asn Phe Leu Glu Arg Leu Lys Thr Ile Met
130 135 140

Arg Glu Lys Tyr Ser Lys Cys Ser Ser
145 150

<210> 49
<211> 1125
<212> DNA
<213> Homo sapiens

<400> 49
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tggtgttgcc tgctgccttc cctgccccag taccgccagg agaagattcc aaagatgtag 180
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<210> 50
 <211> 212
 <212> PRT
 <213> Homo sapiens
 <400> 50

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Gly Leu Leu Leu Val Leu Pro Ala Ala Phe Pro Ala Pro Val Pro Pro
 20 25 30

Gly Glu Asp Ser Lys Asp Val Ala Ala Pro His Arg Gln Pro Leu Thr
 35 40 45

Ser Ser Glu Arg Ile Asp Lys Gln Ile Arg Tyr Ile Leu Asp Gly Ile
 50 55 60

Ser Ala Leu Arg Lys Glu Thr Cys Asn Lys Ser Asn Met Cys Glu Ser
 65 70 75 80

Ser Lys Glu Ala Leu Ala Glu Asn Asn Leu Asn Leu Pro Lys Met Ala
 85 90 95

Glu Lys Asp Gly Cys Phe Gln Ser Gly Phe Asn Glu Glu Thr Cys Leu
 100 105 110

Val Lys Ile Ile Thr Gly Leu Leu Glu Phe Glu Val Tyr Leu Glu Tyr
 115 120 125

Leu Gln Asn Arg Phe Glu Ser Ser Glu Glu Gln Ala Arg Ala Val Gln
 130 135 140

Met Ser Thr Lys Val Leu Ile Gln Phe Leu Gln Lys Lys Ala Lys Asn
 145 150 155 160

Leu Asp Ala Ile Thr Thr Pro Asp Pro Thr Thr Asn Ala Ser Leu Leu
 165 170 175

Thr Lys Leu Gln Ala Gln Asn Gln Trp Leu Gln Asp Met Thr Thr His
180 185 190

Leu Ile Leu Arg Ser Phe Lys Glu Phe Leu Gln Ser Ser Leu Arg Ala
195 200 205

Leu Arg Gln Met
210

<210> 51
<211> 5191
<212> DNA
<213> Homo sapiens

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<210> 52
 <211> 99
 <212> PRT
 <213> Homo sapiens

<400> 52

Met Thr Ser Lys Leu Ala Val Ala Leu Leu Ala Ala Phe Leu Ile Ser
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Ala Ala Leu Cys Glu Gly Ala Val Leu Pro Arg Ser Ala Lys Glu Leu
 20 25 30

Arg Cys Gln Cys Ile Lys Thr Tyr Ser Lys Pro Phe His Pro Lys Phe
 35 40 45

Ile Lys Glu Leu Arg Val Ile Glu Ser Gly Pro His Cys Ala Asn Thr
 50 55 60

Glu Ile Ile Val Lys Leu Ser Asp Gly Arg Glu Leu Cys Leu Asp Pro
 65 70 75 80

Lys Glu Asn Trp Val Gln Arg Val Val Glu Lys Phe Leu Lys Arg Ala
 85 90 95

Glu Asn Ser

<210> 53
 <211> 4663
 <212> DNA
 <213> Homo sapiens

<400> 53

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<210> 54
 <211> 140
 <212> PRT
 <213> Homo sapiens

<400> 54

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Met Gln Glu Asp Pro Ala Ser Lys Cys His Cys Ser Ala Asn Val Thr
35 40 45

Ser Cys Leu Cys Leu Gly Ile Pro Ser Asp Asn Cys Thr Arg Pro Cys
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Phe Ser Glu Arg Leu Ser Gln Met Thr Asn Thr Thr Met Gln Thr Arg
65 70 75 80

Tyr Pro Leu Ile Phe Ser Arg Val Lys Lys Ser Val Glu Val Leu Lys
85 90 95

Asn Asn Lys Cys Pro Tyr Phe Ser Cys Glu Gln Pro Cys Asn Gln Thr
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Thr Ala Gly Asn Ala Leu Thr Phe Leu Lys Ser Leu Leu Glu Ile Phe
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Gln Lys Glu Lys Met Arg Gly Met Arg Gly Lys Ile
 130 135 140

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 <212> DNA
 <213> Homo sapiens

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<210> 56
<211> 14
<212> PRT
<213> Homo sapiens

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<400> 56
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<210> 57
<211> 762
<212> DNA
<213> Homo sapiens

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<400> 57
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<210> 58
<211> 253
<212> PRT
<213> Homo sapiens

<400> 58

Met Trp Pro Pro Gly Ser Ala Ser Gln Pro Pro Pro Ser Pro Ala Ala
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Ala Thr Gly Leu His Pro Ala Ala Arg Pro Val Ser Leu Gln Cys Arg
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Leu Ser Met Cys Pro Ala Arg Ser Leu Leu Leu Val Ala Thr Leu Val
35 40 45

Leu Leu Asp His Leu Ser Leu Ala Arg Asn Leu Pro Val Ala Thr Pro
50 55 60

Asp Pro Gly Met Phe Pro Cys Leu His His Ser Gln Asn Leu Leu Arg
65 70 75 80

Ala Val Ser Asn Met Leu Gln Lys Ala Arg Gln Thr Leu Glu Phe Tyr
85 90 95

Pro Cys Thr Ser Glu Glu Ile Asp His Glu Asp Ile Thr Lys Asp Lys
100 105 110

Thr Ser Thr Val Glu Ala Cys Leu Pro Leu Glu Leu Thr Lys Asn Glu
115 120 125

Ser Cys Leu Asn Ser Arg Glu Thr Ser Phe Ile Thr Asn Gly Ser Cys
 130 135 140

Leu Ala Ser Arg Lys Thr Ser Phe Met Met Ala Leu Cys Leu Ser Ser
 145 150 155 160

Ile Tyr Glu Asp Leu Lys Met Tyr Gln Val Glu Phe Lys Thr Met Asn
 165 170 175

Ala Lys Leu Leu Met Asp Pro Lys Arg Gln Ile Phe Leu Asp Gln Asn
 180 185 190

Met Leu Ala Val Ile Asp Glu Leu Met Gln Ala Leu Asn Phe Asn Ser
 195 200 205

Glu Thr Val Pro Gln Lys Ser Ser Leu Glu Glu Pro Asp Phe Tyr Lys
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Thr Lys Ile Lys Leu Cys Ile Leu Leu His Ala Phe Arg Ile Arg Ala
 225 230 235 240

Val Thr Ile Asp Arg Val Met Ser Tyr Leu Asn Ala Ser
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<210> 59
 <211> 471
 <212> DNA
 <213> Homo sapiens

<400> 59
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<210> 60
 <211> 1831
 <212> DNA

<213> Homo sapiens

<400> 60

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<210> 61
 <211> 177
 <212> PRT
 <213> Homo sapiens

<400> 61

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 1 5 10 15

Leu Cys Ser Val Asp Asn His Gly Leu Arg Arg Cys Leu Ile Ser Thr
 20 25 30

Asp Met His His Ile Glu Glu Ser Phe Gln Glu Ile Lys Arg Ala Ile
 35 40 45

Gln Ala Lys Asp Thr Phe Pro Asn Val Thr Ile Leu Ser Thr Leu Glu
 50 55 60

Thr Leu Gln Ile Ile Lys Pro Leu Asp Val Cys Cys Val Thr Lys Asn
 65 70 75 80

Leu Leu Ala Phe Tyr Val Asp Arg Val Phe Lys Asp His Gln Glu Pro
 85 90 95

Asn Pro Lys Ile Leu Arg Lys Ile Ser Ser Ile Ala Asn Ser Phe Leu
 100 105 110

Tyr Met Gln Lys Thr Leu Arg Gln Cys Gln Glu Gln Arg Gln Cys His
 115 120 125

Cys Arg Gln Glu Ala Thr Asn Ala Thr Arg Val Ile His Asp Asn Tyr
 130 135 140

Asp Gln Leu Glu Val His Ala Ala Ala Ile Lys Ser Leu Gly Glu Leu
 145 150 155 160

Asp Val Phe Leu Ala Trp Ile Asn Lys Asn His Glu Val Met Phe Ser
 165 170 175

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<210> 62
 <211> 711
 <212> DNA
 <213> Homo sapiens

<400> 62
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 aggtgccact ggacctggtg tcacggatga aaccgtatgc ccgcatggag gagtatgaga 240
 ggaacatcga ggagatggtg gccagctga ggaacagctc agagctggcc cagagaaagt 300
 gtgaggtcaa cttgcagctg tggatgtcca acaagaggag cctgtctccc tggggctaca 360
 gcatcaacca cgaccccagc cgtatccccg tggacctgcc ggaggcacgg tgccctgtgtc 420
 tgggctgtgt gaaccccttc accatgcagg aggaccgcag catggtgagc gtgccggtgt 480
 tcagccaggt tcctgtgcgc cgcgcctct gcccgcacc gcccgcaca gggccttgcc 540
 gccagcgcgc agtcatggag accatcgctg tgggctgcac ctgcatcttc tgaattacct 600
 ggcccagaag ccaggccagc agcccagac catcctcctt gcacctttgt gccaagaaag 660
 gcctatgaaa agtaaact gacttttgaa agcaaaaaa aaaaaaaaaa a 711

<210> 63
 <211> 180
 <212> PRT
 <213> Homo sapiens

<400> 63
 Met Asp Trp Pro His Asn Leu Leu Phe Leu Leu Thr Ile Ser Ile Phe
 1 5 10 15
 Leu Gly Leu Gly Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln
 20 25 30
 Gly Arg Pro Gly Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp
 35 40 45
 Leu Val Ser Arg Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg
 50 55 60
 Asn Ile Glu Glu Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala
 65 70 75 80
 Gln Arg Lys Cys Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg

85

90

95

Ser Leu Ser Pro Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile
 100 105 110

Pro Val Asp Leu Pro Glu Ala Arg Cys Leu Cys Leu Gly Cys Val Asn
 115 120 125

Pro Phe Thr Met Gln Glu Asp Arg Ser Met Val Ser Val Pro Val Phe
 130 135 140

Ser Gln Val Pro Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr
 145 150 155 160

Gly Pro Cys Arg Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys
 165 170 175

Thr Cys Ile Phe
 180

<210> 64
 <211> 1049
 <212> DNA
 <213> Mus musculus

<400> 64
 aaaacaacag gaagcagctt acaaactcgg tgaacaactg aggggaaccaa accagagacg 60
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 tggtgcaagg cgcagagcca gccagatttg agaagaaggc aaaaagatgc tggggagcag 180
 agctgtaatg ctgctgttgc tgctgccctg gacagctcag ggcagagctg tgctggggg 240
 cagcagccct gcctggactc agtgccagca gctttcacag aagctctgca cactggcctg 300
 gagtgacat ccactagtgg gacacatgga tctaagagaa gagggagatg aagagactac 360
 aaatgatgtt ccccatatcc agtgtggaga tggctgtgac cccaaggac tcagggacaa 420
 cagtcagttc tgcttgcaaa ggatccacca gggctctgatt ttttatgaga agctgctagg 480
 atcgatatt ttcacagggg agccttctct gctccctgat agccctgtgg gccagcttca 540
 tgctcccta ctgggcctca gccaaactcct gcagcctgag ggtcaccact gggagactca 600
 gcagattcca agcctcagtc ccagccagcc atggcagcgt ctcttctcc gcttcaaaat 660
 ccttcgcagc ctccaggcct ttgtggctgt agccgcccg gtctttgccc atggagcagc 720
 aaccctgagt ccctaaaggc agcagctcaa ggatggcact cagatctcca tggcccagca 780
 aggccaagat aaatctacca cccagggcac ctgtgagcca acaggttaat tagtccatta 840

atttttagtgg gacctgcata tgttgaaaat taccaatact gactgacatg tgatgctgac 900
 ctatgataag gttgagtatt tattagatgg gaaggggaaat ttgggggatta tttatcctcc 960
 tggggacagt ttggggagga ttatttattg tatttatatt gaattatgta cttttttcaa 1020
 taaagtctta tttttgtggc taaaaaaaaa 1049

<210> 65
 <211> 189
 <212> PRT
 <213> Mus musculus

<400> 65

Met Leu Gly Ser Arg Ala Val Met Leu Leu Leu Leu Leu Pro Trp Thr
 1 5 10 15

Ala Gln Gly Arg Ala Val Pro Gly Gly Ser Ser Pro Ala Trp Thr Gln
 20 25 30

Cys Gln Gln Leu Ser Gln Lys Leu Cys Thr Leu Ala Trp Ser Ala His
 35 40 45

Pro Leu Val Gly His Met Asp Leu Arg Glu Glu Gly Asp Glu Glu Thr
 50 55 60

Thr Asn Asp Val Pro His Ile Gln Cys Gly Asp Gly Cys Asp Pro Gln
 65 70 75 80

Gly Leu Arg Asp Asn Ser Gln Phe Cys Leu Gln Arg Ile His Gln Gly
 85 90 95

Leu Ile Phe Tyr Glu Lys Leu Leu Gly Ser Asp Ile Phe Thr Gly Glu
 100 105 110

Pro Ser Leu Leu Pro Asp Ser Pro Val Gly Gln Leu His Ala Ser Leu
 115 120 125

Leu Gly Leu Ser Gln Leu Leu Gln Pro Glu Gly His His Trp Glu Thr
 130 135 140

Gln Gln Ile Pro Ser Leu Ser Pro Ser Gln Pro Trp Gln Arg Leu Leu
 145 150 155 160

Leu Arg Phe Lys Ile Leu Arg Ser Leu Gln Ala Phe Val Ala Val Ala
 165 170 175

Ala Arg Val Phe Ala His Gly Ala Ala Thr Leu Ser Pro
 180 185

<210> 66
 <211> 732
 <212> DNA
 <213> Homo sapiens

<400> 66
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 ctggttcaag ctggtgtctg gggattccca agggccccag ggaggcccca gctgagcctg 120
 caggagctgc ggagggagtt cacagtcagc ctgcatctcg ccaggaagct gctctccgag 180
 gttcggggcc agggccaccg ctttgcgga tctcacctgc caggagtga cctgtacctc 240
 ctgcccctgg gagagcagct cctgatgtt tccctgacct tccaggcctg gcgccgcctc 300
 tctgaccggg agcgtctctg ctctcatctcc accacgcttc agcccttcca tgccccgctg 360
 ggagggctgg ggaccagggg ccgctggacc aacatggaga ggatgcagct gtggggccatg 420
 aggctggacc tccgcgatct gcagcggcac ctccgcttcc aggtgctggc tgcaggattc 480
 aacctcccgg aggaggagga ggaggaagag gaggaggagg aggaggagag gaaggggctg 540
 ctcccagggg cactgggcag cgccttacag ggcccggccc aggtgtcctg gccccagctc 600
 ctctccacct accgcctgct gcactccttg gagctcgtct tatctcgggc cgtgcgggag 660
 ttgctgctgc tgtccaaggc tgggcactca gtctggccct tggggttccc aacattgagc 720
 ccccagccct ga 732

<210> 67
 <211> 243
 <212> PRT
 <213> Homo sapiens

<400> 67
 Met Gly Gln Thr Ala Gly Asp Leu Gly Trp Arg Leu Ser Leu Leu Leu
 1 5 10 15
 Leu Pro Leu Leu Leu Val Gln Ala Gly Val Trp Gly Phe Pro Arg Pro
 20 25 30
 Pro Gly Arg Pro Gln Leu Ser Leu Gln Glu Leu Arg Arg Glu Phe Thr
 35 40 45
 Val Ser Leu His Leu Ala Arg Lys Leu Leu Ser Glu Val Arg Gly Gln
 50 55 60

Ala His Arg Phe Ala Glu Ser His Leu Pro Gly Val Asn Leu Tyr Leu
65 70 75 80

Leu Pro Leu Gly Glu Gln Leu Pro Asp Val Ser Leu Thr Phe Gln Ala
85 90 95

Trp Arg Arg Leu Ser Asp Pro Glu Arg Leu Cys Phe Ile Ser Thr Thr
100 105 110

Leu Gln Pro Phe His Ala Pro Leu Gly Gly Leu Gly Thr Gln Gly Arg
115 120 125

Trp Thr Asn Met Glu Arg Met Gln Leu Trp Ala Met Arg Leu Asp Leu
130 135 140

Arg Asp Leu Gln Arg His Leu Arg Phe Gln Val Leu Ala Ala Gly Phe
145 150 155 160

Asn Leu Pro Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu
165 170 175

Arg Lys Gly Leu Leu Pro Gly Ala Leu Gly Ser Ala Leu Gln Gly Pro
180 185 190

Ala Gln Val Ser Trp Pro Gln Leu Leu Ser Thr Tyr Arg Leu Leu His
195 200 205

Ser Leu Glu Leu Val Leu Ser Arg Ala Val Arg Glu Leu Leu Leu Leu
210 215 220

Ser Lys Ala Gly His Ser Val Trp Pro Leu Gly Phe Pro Thr Leu Ser
225 230 235 240

Pro Gln Pro

<210> 68
<211> 736
<212> DNA
<213> Homo sapiens

<400> 68
ttcaagggtta cccatctcaa gtagcctagc aatattggca acatcccaat ggcctgtcc 60
ttttctttac tgatggccgt gctggtgctc agctacaaat ccatctgttc tctgggctgt 120
gatctgcctc agaccacag cctgggtaat aggaggcct tgatactcct ggcacaaatg 180

ggaagaatct ctcctttctc ctgcctgaag gacagacatg actttggatt ccccaggag 240
 gagtttgatg gcaaccagtt ccagaaggct caagccatct ctgtcctcca tgagatgatc 300
 cagcagacct tcaatctctt cagcacaaag gactcatctg ctacttggga acagagcctc 360
 ctagaaaaat tttccactga acttaaccag cagctgaatg acctggaagc ctgcgtgata 420
 caggagggttg ggggtggaaga gactcccttg atgaatgtgg actccatcct ggctgtgaag 480
 aaatacttcc aaagaatcac tctttatctg acagagaaga aatacagccc ttgtgcctgg 540
 gaggttgtca gagcagaaat catgagatcc ttctctttat caaaaatttt tcaagaaaga 600
 ttaaggagga aggaatgaaa cctgtttcaa catggaaatg atctgtattg actaatacac 660
 cagtccacac ttctatgact tctgccattht caaagactca tttctcctat aaccaccgca 720
 tgagttgact caaaac 736

<210> 69
 <211> 181
 <212> PRT
 <213> Homo sapiens

<400> 69

Met Ala Val Leu Val Leu Ser Tyr Lys Ser Ile Cys Ser Leu Gly Cys
 1 5 10 15

Asp Leu Pro Gln Thr His Ser Leu Gly Asn Arg Arg Ala Leu Ile Leu
 20 25 30

Leu Ala Gln Met Gly Arg Ile Ser Pro Phe Ser Cys Leu Lys Asp Arg
 35 40 45

His Asp Phe Gly Phe Pro Gln Glu Glu Phe Asp Gly Asn Gln Phe Gln
 50 55 60

Lys Ala Gln Ala Ile Ser Val Leu His Glu Met Ile Gln Gln Thr Phe
 65 70 75 80

Asn Leu Phe Ser Thr Lys Asp Ser Ser Ala Thr Trp Glu Gln Ser Leu
 85 90 95

Leu Glu Lys Phe Ser Thr Glu Leu Asn Gln Gln Leu Asn Asp Leu Glu
 100 105 110

Ala Cys Val Ile Gln Glu Val Gly Val Glu Glu Thr Pro Leu Met Asn
 115 120 125

Val Asp Ser Ile Leu Ala Val Lys Lys Tyr Phe Gln Arg Ile Thr Leu
 130 135 140

Tyr Leu Thr Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val Arg
 145 150 155 160

Ala Glu Ile Met Arg Ser Phe Ser Leu Ser Lys Ile Phe Gln Glu Arg
 165 170 175

Leu Arg Arg Lys Glu
 180

<210> 70
 <211> 840
 <212> DNA
 <213> Homo sapiens

<400> 70
 acattctaac tgcaaccttt cgaagccttt gctctggcac aacaggtagt aggcgacact 60
 gttcgtgttg tcaacatgac caacaagtgt ctctccaaa ttgctctcct gttgtgcttc 120
 tccactacag ctctttccat gagctacaac ttgcttggat tcctacaaag aagcagcaat 180
 tttcagtgtc agaagctcct gtggcaattg aatgggaggc ttgaatactg cctcaaggac 240
 aggatgaact ttgacatccc tgaggagatt aagcagctgc agcagttcca gaaggaggac 300
 gccgcattga ccatctatga gatgctccag aacatctttg ctattttcag acaagattca 360
 tctagcactg gctggaatga gactattggt gagaacctcc tggctaattgt ctatcatcag 420
 ataaaccatc tgaagacagt cctggaagaa aaactggaga aagaagattt caccagggga 480
 aaactcatga gcagtctgca cctgaaaaga tattatggga ggattctgca ttacctgaag 540
 gcccaaggagt acagtcactg tgcctggacc atagtcagag tggaaatcct aaggaacttt 600
 tacttcatta acagacttac aggttacctc cgaaactgaa gatctcctag cctgtgcctc 660
 tgggactgga caattgcttc aagcattctt caaccagcag atgctgttta agtgactgat 720
 ggctaattga ctgcatatga aaggacacta gaagattttg aaatttttat taaattatga 780
 gttattttta tttattttaa ttttattttg gaaaataaat tatttttggt gcaaaagtca 840

<210> 71
 <211> 187
 <212> PRT
 <213> Homo sapiens

<400> 71

Met Thr Asn Lys Cys Leu Leu Gln Ile Ala Leu Leu Cys Phe Ser

1	5	10	15
Thr Thr Ala Leu Ser Met Ser Tyr Asn Leu Leu Gly Phe Leu Gln Arg	20	25	30
Ser Ser Asn Phe Gln Cys Gln Lys Leu Leu Trp Gln Leu Asn Gly Arg	35	40	45
Leu Glu Tyr Cys Leu Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu	50	55	60
Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile	65	70	75
Tyr Glu Met Leu Gln Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser	85	90	95
Ser Thr Gly Trp Asn Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val	100	105	110
Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu	115	120	125
Lys Glu Asp Phe Thr Arg Gly Lys Leu Met Ser Ser Leu His Leu Lys	130	135	140
Arg Tyr Tyr Gly Arg Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser	145	150	155
His Cys Ala Trp Thr Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr	165	170	175
Phe Ile Asn Arg Leu Thr Gly Tyr Leu Arg Asn	180	185	

<210> 72
 <211> 750
 <212> DNA
 <213> Homo sapiens

<400> 72	
atggccatgc tcaggggtcca gcccgaggcc caagccaagg tggatgtgtt tcgtgaagac	60
ctctgtacca agacagagaa cctgctcggg agctatttcc ccaagaagat ttctgagctg	120
gatgcatttt taaaggagcc agctctcaat gaagccaact tgagcaatct gaaggcccca	180
ttggacatcc cagtgcctga tccagtcaag gagaaagaga aagaggagcg gaagaaacag	240

caggagaagg aagacaagga tgaaaagaag aagggggagg atgaagacaa aggtcctccc 300
 tgtggcccag tgaactgcaa tgaaaagatc gtggtccttc tgcagcgctt gaagcctgag 360
 atcaaggatg tcattgagca gctcaacctg gtcaccacct ggttgagct gcagatacct 420
 cggattgagg atggtaacaa ttttggagtg gctgtccagg agaaggtgtt tgagctgatg 480
 accagcctcc acaccaagct agaaggcttc cacactcaaa tctctaagta tttctctgag 540
 cgtggtgatg cagtgactaa agcagccaag cagcccatg tgggtgatta tcggcagctg 600
 gtgcacgagc tggatgaggc agagtaccgg gacatccggc tgatgggtcat ggagatccgc 660
 aatgcttatg ctgtgttata tgacatcatc ctgaagaact tcgagaagct caagaagccc 720
 aggggagaaa caaaggggaat gatctattga 750

<210> 73
 <211> 249
 <212> PRT
 <213> Homo sapiens

<400> 73

Met Ala Met Leu Arg Val Gln Pro Glu Ala Gln Ala Lys Val Asp Val
 1 5 10 15

Phe Arg Glu Asp Leu Cys Thr Lys Thr Glu Asn Leu Leu Gly Ser Tyr
 20 25 30

Phe Pro Lys Lys Ile Ser Glu Leu Asp Ala Phe Leu Lys Glu Pro Ala
 35 40 45

Leu Asn Glu Ala Asn Leu Ser Asn Leu Lys Ala Pro Leu Asp Ile Pro
 50 55 60

Val Pro Asp Pro Val Lys Glu Lys Glu Lys Glu Glu Arg Lys Lys Gln
 65 70 75 80

Gln Glu Lys Glu Asp Lys Asp Glu Lys Lys Lys Gly Glu Asp Glu Asp
 85 90 95

Lys Gly Pro Pro Cys Gly Pro Val Asn Cys Asn Glu Lys Ile Val Val
 100 105 110

Leu Leu Gln Arg Leu Lys Pro Glu Ile Lys Asp Val Ile Glu Gln Leu
 115 120 125

Asn Leu Val Thr Thr Trp Leu Gln Leu Gln Ile Pro Arg Ile Glu Asp

130

135

140

Gly Asn Asn Phe Gly Val Ala Val Gln Glu Lys Val Phe Glu Leu Met
145 150 155 160

Thr Ser Leu His Thr Lys Leu Glu Gly Phe His Thr Gln Ile Ser Lys
165 170 175

Tyr Phe Ser Glu Arg Gly Asp Ala Val Thr Lys Ala Ala Lys Gln Pro
180 185 190

His Val Gly Asp Tyr Arg Gln Leu Val His Glu Leu Asp Glu Ala Glu
195 200 205

Tyr Arg Asp Ile Arg Leu Met Val Met Glu Ile Arg Asn Ala Tyr Ala
210 215 220

Val Leu Tyr Asp Ile Ile Leu Lys Asn Phe Glu Lys Leu Lys Lys Pro
225 230 235 240

Arg Gly Glu Thr Lys Gly Met Ile Tyr
245

<210> 74

<211> 1669

<212> DNA

<213> Homo sapiens

<400> 74

ctccctcagc aaggacagca gaggaccagc taagagggag agaagcaact acagaccccc 60
cctgaaaaca accctcagac gccacatccc ctgacaagct gccaggcagg ttctcttctt 120
ctcacatact gaccacaggc tccacctct ctccctgga aaggacacca tgagcactga 180
aagcatgatc cgggacgtgg agctggccga ggaggcgctc cccaagaaga cagggggggc 240
ccagggctcc aggcgggtgt tgttcctcag cctctttctc ttctgatcg tggcaggcgc 300
caccacgctc ttctgcctgc tgcactttgg agtgatcggc cccagaggg aagagttccc 360
cagggacctc tctetaatca gccctctggc ccaggcagtc agatcatctt ctcgaacccc 420
gagtgaacag cctgtagccc atgttgtagc aaacctcaa gctgaggggc agctccagtg 480
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gggtggtgcc ttagaggggc tgtacctcat ctactcccag gtcctcttca agggccaagg 600
ctgcccctcc acctatgtgc tctcaccce caccatcagc cgcacgcgcg tctctacca 660
gaccaaggtc aacctctct ctgccatcaa gagcccctgc cagagggaga cccagaggg 720

ggctgaggcc aagccctggt atgagcccat ctatctggga ggggtcttcc agctggagaa 780
 gggtgaccga ctgagcgtg agatcaatcg gcccgactat ctgactttg ccgagtctgg 840
 gcaggtctac tttgggatca ttgccctgtg aggaggacga acatccaacc ttcccaaacy 900
 cctcccctgc cccaatccct ttattacccc ctcttccaga caccctcaac ctcttctggc 960
 tcaaaaagag aattgggggc ttagggctcg aaccaagct tagaacttta agcaacaaga 1020
 ccaccacttc gaaacctggg attcaggaat gtgtggcctg cacagtgaag tgctggcaac 1080
 cactaagaat tcaaactggg gcctccagaa ctactgggg cctacagctt tgatccctga 1140
 catctggaat ctggagacca gggagccttt ggttctggcc agaattgctgc aggacttgag 1200
 aagacctcac ctagaaattg acacaagtgg accttaggcc ttctctctc cagatgtttc 1260
 cagacttctt tgagacacgg agcccagccc tcccattgga gccagctccc tctatttatg 1320
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 tatttgggag accgggggtat cctgggggac ccaatgtagg agctgccttg gctcagacat 1440
 gttttccgtg aaaacggagc tgaacaatag gctgttccca tgtagccccc tggcctctgt 1500
 gccttctttt gattatgttt tttaaaatat ttatctgatt aagttgtcta aacaatgctg 1560
 atttggtgac caactgtcac tcattgctga gcctctgctc cccaggggag ttgtgtctgt 1620
 aatcgcccta ctattcagtg gcgagaaata aagtttgctt agaaaagaa 1669

<210> 75
 <211> 233
 <212> PRT
 <213> Homo sapiens

<400> 75

Met Ser Thr Glu Ser Met Ile Arg Asp Val Glu Leu Ala Glu Glu Ala
 1 5 10 15

Leu Pro Lys Lys Thr Gly Gly Pro Gln Gly Ser Arg Arg Cys Leu Phe
 20 25 30

Leu Ser Leu Phe Ser Phe Leu Ile Val Ala Gly Ala Thr Thr Leu Phe
 35 40 45

Cys Leu Leu His Phe Gly Val Ile Gly Pro Gln Arg Glu Glu Phe Pro
 50 55 60

Arg Asp Leu Ser Leu Ile Ser Pro Leu Ala Gln Ala Val Arg Ser Ser
 65 70 75 80

Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala Asn Pro
85 90 95

Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala Leu
100 105 110

Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu Val Val Pro Ser
115 120 125

Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe Lys Gly Gln Gly
130 135 140

Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile Ser Arg Ile Ala
145 150 155 160

Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala Ile Lys Ser Pro
165 170 175

Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys Pro Trp Tyr Glu
180 185 190

Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys Gly Asp Arg Leu
195 200 205

Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe Ala Glu Ser Gly
210 215 220

Gln Val Tyr Phe Gly Ile Ile Ala Leu
225 230

<210> 76
<211> 37797
<212> DNA
<213> Homo sapiens

<400> 76
cctccttaga caagcttcta catgctactc atctctccat caaaccacca tattcgggct 60
ttggccatct gctctccaca gccaaagtccc cagtggcctc tctgcttctg acacagtga 120
agccattcag atctgtcttg ttggcagcat tctcacttt gagcagcgcc ctctactag 180
gatacccctc cttgactaca accccacatt ctctacttcc tgggctcttc tgtcactgga 240
ggatgactcc caggtgtgaa tcttcatccc gcgtccctca ctcaagcccc cgatcctcat 300
atccagcttt atcctcatgg gatgcttcac caggatgagt cataagcacc tcagactcag 360
gggtgtcccaa accactcatc tacctggcaa gctgcactc tgcattgtgcc tcattctgaa 420

catggcacca	tcacctgctg	caatgtccag	accacaaaca	ccctacaata	tccttgactc	480
tcctttctcc	ccttctccct	gtatacagac	tccaaattct	attgagacta	ttacctccta	540
caccctcac	atttgcccag	ccttccccat	ctctgcctct	accaccatag	ttcaagctct	600
cccattggtcc	cttctggtt	acctgttctt	cttgcctcct	taagcctctc	atgacactgg	660
ccatgtcact	tgcctccacc	catcacccgc	taggctctta	gctggagtct	gggccctgct	720
accttctctc	ccttcttccc	tacccttgac	tccacctccc	tgtgcttcag	ccaaccagat	780
aacttgagtt	tcgtgaatgc	atgcctcagt	ttacctgatt	aactcatttt	catctttcag	840
gcctcagagc	aggtatcacc	ctgtcagggc	caggtgcctc	ttcttagctc	ccaaagcccc	900
agctactctt	catggaacat	cattggcttg	ggctacggat	cttcccaa	tggagctttt	960
tcacaaagg	cttaggtctc	actcattcta	ttaatccatc	tgtgtctccc	cagggtagc	1020
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gtgacaattt	gtttacctgc	cttgagctcc	tccagggcag	gactcttgcc	tttgagaat	1140
ctatctggca	ggtactgttg	cagagatggt	tactgaagaa	gggaatgaat	tagtaccaag	1200
gtgaggaccc	cacccttccc	cacgggctcc	aaaagcagct	tagagcccaa	caaacctgc	1260
cccacatttt	tggcggttct	gtggatcaca	cgatttactc	atctgtcttt	caatgagcat	1320
gacaggtggg	gtgggggtgg	agggattaga	gattgaggag	ctggggaggg	tggtcagctc	1380
ctgggggtgca	gaaacaagtc	tgatgggcca	tgggtgtctg	ggaatcagca	ctgcctcccc	1440
tcacccctcc	ctgcagtgtt	ttgtagcctc	aagatcagtg	agggaatctt	cgggccccca	1500
gcatgcagga	ccgaagcccc	cgagacagct	gtccctcagt	ccaaggtcc	ccatttgga	1560
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gcgggagcgg	gtgggtgccc	agggcagcca	ggggcgacg	ggttgggagg	cgccaggcgg	1740
cccgcctcc	ttgcacgggc	cgggccagct	tccccgccc	tggcgctccg	tccctccgc	1800
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Gly	Gln	Tyr	Thr	Leu	Leu	Ala	Pro	Thr	Asn	Glu	Ala	Phe	Glu	Lys	Ile	
275					280					285						
Pro	Ser	Glu	Thr	Leu	Asn	Arg	Ile	Leu	Gly	Asp	Pro	Glu	Ala	Leu	Arg	
290					295					300						
Asp	Leu	Leu	Asn	Asn	His	Ile	Leu	Lys	Ser	Ala	Met	Cys	Ala	Glu	Ala	
305					310					315					320	
Ile	Val	Ala	Gly	Leu	Ser	Val	Glu	Thr	Leu	Glu	Gly	Thr	Thr	Leu	Glu	
325					330					335						
Val	Gly	Cys	Ser	Gly	Asp	Met	Leu	Thr	Ile	Asn	Gly	Lys	Ala	Ile	Ile	
340					345					350						
Ser	Asn	Lys	Asp	Ile	Leu	Ala	Thr	Asn	Gly	Val	Ile	His	Tyr	Ile	Asp	
355					360					365						
Glu	Leu	Leu	Ile	Pro	Asp	Ser	Ala	Lys	Thr	Leu	Phe	Glu	Leu	Ala	Ala	
370					375					380						
Glu	Ser	Asp	Val	Ser	Thr	Ala	Ile	Asp	Leu	Phe	Arg	Gln	Ala	Gly	Leu	
385					390					395					400	
Gly	Asn	His	Leu	Ser	Gly	Ser	Glu	Arg	Leu	Thr	Leu	Leu	Ala	Pro	Leu	
405					410					415						
Asn	Ser	Val	Phe	Lys	Asp	Gly	Thr	Pro	Pro	Ile	Asp	Ala	His	Thr	Arg	
420					425					430						
Asn	Leu	Leu	Arg	Asn	His	Ile	Ile	Lys	Asp	Gln	Leu	Ala	Ser	Lys	Tyr	
435					440					445						
Leu	Tyr	His	Gly	Gln	Thr	Leu	Glu	Thr	Leu	Gly	Gly	Lys	Lys	Leu	Arg	
450					455					460						
Val	Phe	Val	Tyr	Arg	Asn	Ser	Leu	Cys	Ile	Glu	Asn	Ser	Cys	Ile	Ala	
465					470					475					480	
Ala	His	Asp	Lys	Arg	Gly	Arg	Tyr	Gly	Thr	Leu	Phe	Thr	Met	Asp	Arg	
485					490					495						
Val	Leu	Thr	Pro	Pro	Met	Gly	Thr	Val	Met	Asp	Val	Leu	Lys	Gly	Asp	

500	505	510
Asn Arg Phe Ser Met Leu Val	Ala Ala Ile Gln Ser	Ala Gly Leu Thr
515	520	525
Glu Thr Leu Asn Arg Glu Gly Val Tyr Thr Val	Phe Ala Pro Thr Asn	
530	535	540
Glu Ala Phe Arg Ala Leu Pro Pro Arg Glu Arg Ser Arg Leu Leu Gly		
545	550	555
Asp Ala Lys Glu Leu Ala Asn Ile Leu Lys Tyr His Ile Gly Asp Glu		
	565	570
Ile Leu Val Ser Gly Gly Ile Gly Ala Leu Val Arg Leu Lys Ser Leu		
	580	585
Gln Gly Asp Lys Leu Glu Val Ser Leu Lys Asn Asn Val Val Ser Val		
	595	600
Asn Lys Glu Pro Val Ala Glu Pro Asp Ile Met Ala Thr Asn Gly Val		
	610	615
Val His Val Ile Thr Asn Val Leu Gln Pro Pro Ala Asn Arg Pro Gln		
	625	630
Glu Arg Gly Asp Glu Leu Ala Asp Ser Ala Leu Glu Ile Phe Lys Gln		
	645	650
Ala Ser Ala Phe Ser Arg Ala Ser Gln Arg Ser Val Arg Leu Ala Pro		
	660	665
Val Tyr Gln Lys Leu Leu Glu Arg Met Lys His		
	675	680

<210> 78
 <211> 660
 <212> DNA
 <213> Homo sapiens

<400> 78	
aaaaaacagc ccggagcctg cagcccagcc ccacccagac ccatggctgg acctgccacc	60
cagagcccca tgaagctgat ggccctgcag ctgctgctgt ggcacagtgc actctggaca	120
gtgcaggaag ccacccccct gggccctgcc agctccctgc cccagagctt cctgctcaag	180
tgcttagagc aagtgaggaa gatccagggc gatggcgag cgctccagga gaagctgtgt	240

gccacctaca agctgtgccca ccccgaggag ctggtgctgc tcggacactc tctgggcatc 300
 ccctgggctc ccctgagcag ctgccccagc caggccctgc agctggcagg ctgcttgagc 360
 caactccata ggggcctttt cctctaccag gggctcctgc aggccttgga agggatctcc 420
 cccgagttgg gtccacactt ggacacactg cagctggacg tcgccgactt tgccaccacc 480
 atctggcagc agatggaaga actgggaatg gcccctgccc tgcagccac ccagggtgcc 540
 atgcggcct tcgcctctgc ttccagcgc cgggcaggag gggctctagt tgcctcccat 600
 ctgcagagct tcctggaggt gtcgtaccgc gttctacgcc accttgccca gccctgagcc 660

<210> 79
 <211> 204
 <212> PRT
 <213> Homo sapiens

<400> 79

Met Ala Gly Pro Ala Thr Gln Ser Pro Met Lys Leu Met Ala Leu Gln
 1 5 10 15

Leu Leu Leu Trp His Ser Ala Leu Trp Thr Val Gln Glu Ala Thr Pro
 20 25 30

Leu Gly Pro Ala Ser Ser Leu Pro Gln Ser Phe Leu Leu Lys Cys Leu
 35 40 45

Glu Gln Val Arg Lys Ile Gln Gly Asp Gly Ala Ala Leu Gln Glu Lys
 50 55 60

Leu Cys Ala Thr Tyr Lys Leu Cys His Pro Glu Glu Leu Val Leu Leu
 65 70 75 80

Gly His Ser Leu Gly Ile Pro Trp Ala Pro Leu Ser Ser Cys Pro Ser
 85 90 95

Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser Gly Leu
 100 105 110

Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile Ser Pro Glu
 115 120 125

Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp Phe Ala
 130 135 140

Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro Ala Leu

145		150		155		160
Gln Pro Thr Gln Gly Ala Met Pro Ala Phe Ala Ser Ala Phe Gln Arg						
		165		170		175
Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Gln Ser Phe Leu Glu						
		180		185		190
Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro						
	195		200			

<210> 80
 <211> 2475
 <212> DNA
 <213> Homo sapiens

<400> 80
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 caccacgcga gcgagcgagc gagcgagggc ggccgacgag cccggccggg acccagctgc 120
 ccgtatgacc ggcgcggggc ccgcccgggc ctgccctccc acgacatggc tgggctccct 180
 gctgttggtg gtctgtctcc tggcgagcag gagtatcacc gaggaggtgt cggagtactg 240
 tagccacatg attgggagtg gacacctgca gtctctgcag cggctgattg acagtcagat 300
 ggagacctcg tgccaaatta catttgagtt tgtagaccag gaacagttga aagatccagt 360
 gtgctacctt aagaaggcat ttctcctggt acaagacata atggaggaca ccatgcgctt 420
 cagagataac acccccattg ccatcgccat tgtgcagctg caggaactct ctttgaggct 480
 gaagagctgc ttcaccaagg attatgaaga gcatgacaag gcctgcgtcc gaactttcta 540
 tgagacacct ctccagttgc tggagaaggt caagaatgtc tttaatgaaa caaagaatct 600
 ccttgacaag gactggaata ttttcagcaa gaactgcaac aacagctttg ctgaatgctc 660
 cagccaagat gtggtgacca agcctgattg caactgcctg taccctaaag ccatccctag 720
 cagtgaccgg gcctctgtct cccctcatca gccctcggc ccctccatgg cccctgtggc 780
 tggcttgacc tgggaggact ctgagggaaac tgagggcagc tccctcttgc ctggtgagca 840
 gccctgcac acagtggatc caggcagtgcc caagcagcgg ccaccagga gcacctgcca 900
 gagctttgag ccgccagaga cccagttgt caaggacagc accatcggtg gctcaccaca 960
 gcctcgcccc tctgtcgggg ccttcaacct cgggatggag gatattcttg actctgcaat 1020
 gggcactaat tgggtcccag aagaagcctc tggagaggcc agtgagattc ccgtaccca 1080
 agggacagag ctttcccct ccaggccagg agggggcagc atgcagacag agcccgccag 1140
 acccagcaac ttctctcag catcttctcc actcctgca tcagcaaagg gccaacagcc 1200

ggcagatgta actggtaccg ccttgcccag ggtgggcccc gtgaggccca ctggccagga 1260
 ctggaatcac accccccaga agacagacca tccatctgcc ctgctcagag accccccgga 1320
 gccaggctct cccaggatct catcaccgcg cccccagggc ctcagcaacc cctccaccct 1380
 ctctgctcag ccacagcttt ccagaagcca ctctctgggc agcgtgctgc cccttgggga 1440
 gctggagggc aggaggagca ccagggatcg gaggagcccc gcagagccag aaggaggacc 1500
 agcaagtgaa ggggcagcca ggcccctgcc ccgttttaac tccgttcctt tgactgacac 1560
 acatgagagg cagtccgagg gatcctccag cccgcagctc caggagtctg tcttccacct 1620
 gctggtgccc agtgtcatcc tgggtcttgc ggccgtcgga ggcctcttgt tctacagggtg 1680
 gagggcggcg agccatcaag agcctcagag agcggattct cccttggagc aaccagaggg 1740
 cagccccctc actcaggatg acagacaggt ggaactgcca gtgtagaggg aattctaaga 1800
 cccctcacca tcttggaacac tctcgtttgt caatgtccct ctgaaaatgt gacgcccagc 1860
 cccggacaca gtactccaga tgttgtctga ccagctcaga gagagtacag tgggactgtt 1920
 accttccttg atatggacag tattcttcta tttgtgcaga ttaagattgc attagttttt 1980
 ttcttaacaa ctgcatcata ctgttgtcat atgttgagcc tgtggtctat aaaacccta 2040
 gttccatttc ccataaactt ctgtcaagcc agaccatctc taccctgtac ttggacaact 2100
 taactttttt aaccaaagtg cagtttatgt tcaccttgt taaagccacc ttgtggtttc 2160
 tgcccatcac ctgaacctac tgaagttgtg tgaaatccta attctgtcat ctccgtagcc 2220
 ctcccagttg tgccctctgc acattgatga gtgctgctg ttgtctttgc ccatgttgtt 2280
 gatgtagctg tgacctatt gttcctcacc cctgcccccc gccaaaccca gctggcccac 2340
 ctcttcccc tcccaccaa gccacagcc agcccatcag gaagccttcc tggcttctcc 2400
 acaaccttct gactgtcttt tcagtcattgc cccctgctct tttgtatttg gctaatagta 2460
 tatcaatttg cactt 2475

<210> 81
 <211> 553
 <212> PRT
 <213> Homo sapiens

<400> 81

Met	Thr	Ala	Pro	Gly	Ala	Ala	Gly	Arg	Cys	Pro	Pro	Thr	Thr	Trp	Leu
1				5					10					15	

Gly	Ser	Leu	Leu	Leu	Leu	Val	Cys	Leu	Leu	Ala	Ser	Arg	Ser	Ile	Thr
			20					25					30		

Thr Ile Gly Gly Ser Pro Gln Pro Arg Pro Ser Val Gly Ala Phe Asn
 275 280 285

Pro Gly Met Glu Asp Ile Leu Asp Ser Ala Met Gly Thr Asn Trp Val
 290 295 300

Pro Glu Glu Ala Ser Gly Glu Ala Ser Glu Ile Pro Val Pro Gln Gly
 305 310 315 320

Thr Glu Leu Ser Pro Ser Arg Pro Gly Gly Gly Ser Met Gln Thr Glu
 325 330 335

Pro Ala Arg Pro Ser Asn Phe Leu Ser Ala Ser Ser Pro Leu Pro Ala
 340 345 350

Ser Ala Lys Gly Gln Gln Pro Ala Asp Val Thr Gly Thr Ala Leu Pro
 355 360 365

Arg Val Gly Pro Val Arg Pro Thr Gly Gln Asp Trp Asn His Thr Pro
 370 375 380

Gln Lys Thr Asp His Pro Ser Ala Leu Leu Arg Asp Pro Pro Glu Pro
 385 390 395 400

Gly Ser Pro Arg Ile Ser Ser Pro Arg Pro Gln Gly Leu Ser Asn Pro
 405 410 415

Ser Thr Leu Ser Ala Gln Pro Gln Leu Ser Arg Ser His Ser Ser Gly
 420 425 430

Ser Val Leu Pro Leu Gly Glu Leu Glu Gly Arg Arg Ser Thr Arg Asp
 435 440 445

Arg Arg Ser Pro Ala Glu Pro Glu Gly Gly Pro Ala Ser Glu Gly Ala
 450 455 460

Ala Arg Pro Leu Pro Arg Phe Asn Ser Val Pro Leu Thr Asp Thr His
 465 470 475 480

Glu Arg Gln Ser Glu Gly Ser Ser Ser Pro Gln Leu Gln Glu Ser Val
 485 490 495

Phe His Leu Leu Val Pro Ser Val Ile Leu Val Leu Leu Ala Val Gly
 500 505 510

Gly Leu Leu Phe Tyr Arg Trp Arg Arg Arg Ser His Gln Glu Pro Gln
515 520 525

Arg Ala Asp Ser Pro Leu Glu Gln Pro Glu Gly Ser Pro Leu Thr Gln
530 535 540

Asp Asp Arg Gln Val Glu Leu Pro Val
545 550

<210> 82
<211> 505
<212> DNA
<213> Homo sapiens

<400> 82
aaagttctct ggaggatgtg gctgcagagc ctgctgctct tgggcactgt ggcctgcagc 60
atctctgcac ccgcccgtc gccagcccc agcacacagc cctgggagca tgtgaatgcc 120
atccaggagg ccggcgtct cctgaacctg agtagagaca ctgctgctga gatgaatgaa 180
acagtagaag tcatctcaga aatgtttgac ctccaggagc cgacctgcct acagaccgc 240
ctggagctgt acaagcaggg cctgcggggc agcctcacca agctcaaggg ccccttgacc 300
atgatggcca gccactacaa acagcactgc cctccaacct cggaacttc ctgtgcaacc 360
cagattatca cctttgaaag tttcaaagag aacctgaagg actttctgct tgtcatcccc 420
tttgactgct gggagccagt ccaggagtga gaccggccag atgaggctgg ccaagccggg 480
gagctgctct ctcatgaaac aagag 505

<210> 83
<211> 144
<212> PRT
<213> Homo sapiens

<400> 83

Met Trp Leu Gln Ser Leu Leu Leu Leu Gly Thr Val Ala Cys Ser Ile
1 5 10 15

Ser Ala Pro Ala Arg Ser Pro Ser Pro Ser Thr Gln Pro Trp Glu His
20 25 30

Val Asn Ala Ile Gln Glu Ala Arg Arg Leu Leu Asn Leu Ser Arg Asp
35 40 45

Thr Ala Ala Glu Met Asn Glu Thr Val Glu Val Ile Ser Glu Met Phe
50 55 60

Asp Leu Gln Glu Pro Thr Cys Leu Gln Thr Arg Leu Glu Leu Tyr Lys
65 70 75 80

Gln Gly Leu Arg Gly Ser Leu Thr Lys Leu Lys Gly Pro Leu Thr Met
85 90 95

Met Ala Ser His Tyr Lys Gln His Cys Pro Pro Thr Pro Glu Thr Ser
100 105 110

Cys Ala Thr Gln Ile Ile Thr Phe Glu Ser Phe Lys Glu Asn Leu Lys
115 120 125

Asp Phe Leu Leu Val Ile Pro Phe Asp Cys Trp Glu Pro Val Gln Glu
130 135 140

<210> 84
<211> 1080
<212> DNA
<213> Homo sapiens

<400> 84
ccgggggggca tgagggtccg agacttggtc ttctgtccct tccaagaccc ggcgacagga 60
ggcatgaggg gccccggcc gaaatgacag tgctggcgcc agcctggagc ccaacaacct 120
atctcctcct gctgctgctg ctgagctcgg gactcagtgg gaccaggac tgctccttcc 180
aacacagccc catctcctcc gacttcgctg tcaaaatccg tgagctgtct gactacctgc 240
ttcaagatta ccagtcacc gtggcctcca acctgcagga cgaggagctc tgcggggggc 300
tctggcggt ggtcctggca cagcgctgga tggagcggt caagactgtc gctgggtcca 360
agatgcaagg cttgctggag cgctgaaca cgagataca ctttgtcacc aaatgtgcct 420
ttcagcccc cccagctgt cttcgcttcg tccagaccaa catctccgc ctctgcagg 480
agacctccga gcagctggtg gcgctgaagc cctggatcac tcgccagaac ttctccggt 540
gcctggagct gcagtgtcag cccgactcct caacctgcc accccatgg agtccccggc 600
ccctggagge cacagcccc acagccccgc agccccctct gtcctccta ctgctgctgc 660
ccgtgggcct cctgctgctg gccgctgcct ggtgcctgca ctggcagagg acgcgggcga 720
ggacaccccg ccctggggag caggtgcccc ccgtccccag tcccaggac ctgctgcttg 780
tgagcactg acctggccaa ggcctcatcc tgcggagcct taaacaacgc agtgagacag 840
acatctatca tcccatttta caggggagga tactgaggca cacagagggg agtcaccagc 900
cagaggatgt atagcctgga cacagaggaa gttggctaga ggccgggtccc ttccttgggc 960
ccctctcatt ccctccccag aatggaggca acgccagaat ccagcaccgg cccattttac 1020

ccaactctga acaaagccct tgcccccattg aaattgttta taaatcatcc ttttctccca 1080

<210> 85
<211> 235
<212> PRT
<213> Homo sapiens
<400> 85

Met Thr Val Leu Ala Pro Ala Trp Ser Pro Thr Thr Tyr Leu Leu Leu
1 5 10 15

Leu Leu Leu Leu Ser Ser Gly Leu Ser Gly Thr Gln Asp Cys Ser Phe
20 25 30

Gln His Ser Pro Ile Ser Ser Asp Phe Ala Val Lys Ile Arg Glu Leu
35 40 45

Ser Asp Tyr Leu Leu Gln Asp Tyr Pro Val Thr Val Ala Ser Asn Leu
50 55 60

Gln Asp Glu Glu Leu Cys Gly Gly Leu Trp Arg Leu Val Leu Ala Gln
65 70 75 80

Arg Trp Met Glu Arg Leu Lys Thr Val Ala Gly Ser Lys Met Gln Gly
85 90 95

Leu Leu Glu Arg Val Asn Thr Glu Ile His Phe Val Thr Lys Cys Ala
100 105 110

Phe Gln Pro Pro Pro Ser Cys Leu Arg Phe Val Gln Thr Asn Ile Ser
115 120 125

Arg Leu Leu Gln Glu Thr Ser Glu Gln Leu Val Ala Leu Lys Pro Trp
130 135 140

Ile Thr Arg Gln Asn Phe Ser Arg Cys Leu Glu Leu Gln Cys Gln Pro
145 150 155 160

Asp Ser Ser Thr Leu Pro Pro Pro Trp Ser Pro Arg Pro Leu Glu Ala
165 170 175

Thr Ala Pro Thr Ala Pro Gln Pro Pro Leu Leu Leu Leu Leu Leu Leu
180 185 190

Pro Val Gly Leu Leu Leu Leu Ala Ala Ala Trp Cys Leu His Trp Gln

195

200

205

Arg Thr Arg Arg Arg Thr Pro Arg Pro Gly Glu Gln Val Pro Pro Val
 210 215 220

Pro Ser Pro Gln Asp Leu Leu Leu Val Glu His
 225 230 235

<210> 86
 <211> 1321
 <212> DNA
 <213> Homo sapiens

<400> 86
 ccgcctcgcg ccgagactag aagcgctgcg ggaagcaggg acagtggaga gggcgctgcg 60
 ctctgggctac ccaatgcgtg gactatctgc cgccgctgtt cgtgcaatat gctggagctc 120
 cagaacagct aaacggagtc gccacaccac tgtttgtgct ggatcgcagc gctgcctttc 180
 cttatgaaga agacacaaac ttggattctc acttgcattt atcttcagct gctcctattt 240
 aatcctctcg tcaaaactga agggatctgc aggaatcgtg tgactaataa tgtaaaagac 300
 gtcactaaat tgggtggcaaa tcttccaaaa gactacatga taaccctcaa atatgtcccc 360
 gggatggatg ttttgccaag tcattgttgg ataagcgaga tggtagtaca attgtcagac 420
 agcttgactg atcttctgga caagttttca aatatttctg aaggcttgag taattattcc 480
 atcatagaca aacttgtgaa tatagtcgat gaccttgtgg agtgcgtcaa agaaaactca 540
 tctaaggatc taaaaaaatc attcaagagc ccagaacca ggctctttac tcctgaagaa 600
 ttcttttagaa tttttaatag atccattgat gccttcaagg actttgtagt ggcatctgaa 660
 actagtgatt gtgtgggtttc ttcaacatta agtcctgaga aagggaaggc caaaaatccc 720
 cctggagact ccagcctaca ctgggcagcc atggcattgc cagcattgtt ttctcttata 780
 attggctttg cttttggagc cttatactgg aagaagagac agccaagtct tacaagggca 840
 gttgaaaata tacaaattaa tgaagaggat aatgagataa gtatgttgca agagaaagag 900
 agagagtttc aagaagtgta aattgtggct tgtatcaaca ctgttacttt cgtacattgg 960
 ctggtaacag ttcattgtttg cttcataaat gaagcagctt taaacaaatt catattctgt 1020
 ctggagtgc agaccacatc tttatctgtt cttgctaccc atgactttat atggatgatt 1080
 cagaaattgg aacagaatgt tttactgtga aactggcact gaattaatca tctataaaga 1140
 agaacttgca tggagcagga ctctatttta aggactgcgg gacttgggtc tcatttagaa 1200
 cttgcagctg atgttggaag agaaagcacg tgtctcagac tgcattgtacc atttgcattg 1260
 ctccagaaat gtctaaatgc tgaaaaaaca cctagcttta ttcttcagat acaaactgca 1320

<210> 87
 <211> 245
 <212> PRT
 <213> Homo sapiens

<400> 87

Met Lys Lys Thr Gln Thr Trp Ile Leu Thr Cys Ile Tyr Leu Gln Leu
 1 5 10 15

Leu Leu Phe Asn Pro Leu Val Lys Thr Glu Gly Ile Cys Arg Asn Arg
 20 25 30

Val Thr Asn Asn Val Lys Asp Val Thr Lys Leu Val Ala Asn Leu Pro
 35 40 45

Lys Asp Tyr Met Ile Thr Leu Lys Tyr Val Pro Gly Met Asp Val Leu
 50 55 60

Pro Ser His Cys Trp Ile Ser Glu Met Val Val Gln Leu Ser Asp Ser
 65 70 75 80

Leu Thr Asp Leu Leu Asp Lys Phe Ser Asn Ile Ser Glu Gly Leu Ser
 85 90 95

Asn Tyr Ser Ile Ile Asp Lys Leu Val Asn Ile Val Asp Asp Leu Val
 100 105 110

Glu Cys Val Lys Glu Asn Ser Ser Lys Asp Leu Lys Lys Ser Phe Lys
 115 120 125

Ser Pro Glu Pro Arg Leu Phe Thr Pro Glu Glu Phe Phe Arg Ile Phe
 130 135 140

Asn Arg Ser Ile Asp Ala Phe Lys Asp Phe Val Val Ala Ser Glu Thr
 145 150 155 160

Ser Asp Cys Val Val Ser Ser Thr Leu Ser Pro Glu Lys Gly Lys Ala
 165 170 175

Lys Asn Pro Pro Gly Asp Ser Ser Leu His Trp Ala Ala Met Ala Leu
 180 185 190

Pro Ala Leu Phe Ser Leu Ile Ile Gly Phe Ala Phe Gly Ala Leu Tyr

195

200

205

Trp Lys Lys Arg Gln Pro Ser Leu Thr Arg Ala Val Glu Asn Ile Gln
210 215 220

Ile Asn Glu Glu Asp Asn Glu Ile Ser Met Leu Gln Glu Lys Glu Arg
225 230 235 240

Glu Phe Gln Glu Val
245